EXHIBIT B

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

FRACTUS, S.A., Plaintiff, v. AT&T MOBILITY LLC, Defendant, and COMMSCOPE TECHNOLOGIES LLC and CELLMAX TECHNOLOGIES AB, Intervenor-Defendants.	Case No. 2:18-cv-00135-JRG LEAD CASE
SPRINT COMMUNICATIONS COMPANY, L.P., ET AL., Defendants, and COMMSCOPE TECHNOLOGIES LLC and CELLMAX TECHNOLOGIES AB, Intervenor-Defendants.	Case No. 2:18-cv-00136-JRG
T-MOBILE US, INC., ET AL., Defendants, and COMMSCOPE TECHNOLOGIES LLC and CELLMAX TECHNOLOGIES AB, Intervenor-Defendants.	Case No. 2:18-cv-00137-JRG

CELLCO PARTNERSHIP D/B/A VERIZONE WIRELESS,

Defendant,

and

COMMSCOPE TECHNOLOGIES LLC,

Intervenor-Defendant.

Case No. 2:18-cv-00138-JRG

DECLARATION OF DR. STUART LONG IN SUPPORT OF PLAINTIFF FRACTUS, S.A.'S CLAIM CONSTRUCTIONS

I, Stuart Long, Ph.D., declare as follows:

1. My full name is Stuart A. Long. I am currently a Professor in the Department of Electrical and Computer Engineering and Associate Dean of Undergraduate Research and the Honors College at the University of Houston.

2. I have studied, taught, and practiced electrical engineering and directly related fields for over 45 years. I hold degrees from Rice University (Bachelor of Arts in Electrical Engineering, *magna cum laude*, 1967, Master of Electrical Engineering, 1968) and Harvard University (Ph.D. in Applied Physics specializing in Applied Electromagnetics, 1974). I have been a registered Professional Engineer in the State of Texas since 1986.

3. I worked at Collins Radio Corporation in Dallas, Texas, in the amplifier design group during the summer of 1967, just after graduating with a Bachelor's degree from Rice University. After returning to Rice University and graduating with a Master's degree in 1968, I worked for General Dynamics in Fort Worth, Texas in their antenna design group developing aircraft antennas until 1969. At that time I enrolled in graduate school at Harvard University where I was both a teaching assistant and a research assistant. During the summers of 1970 and 1971, I

worked at the Los Alamos Scientific Laboratories in Los Alamos, New Mexico, designing and developing antennas and other sensing devices for the linear proton accelerator being constructed at the time. After receiving a Ph.D. from Harvard University in 1974, I joined the faculty of the Department of Electrical Engineering at the University of Houston, located in Houston, Texas, as an Assistant Professor. I was promoted to Associate Professor with tenure in 1979, and to Full Professor in 1985. I served as Acting Chair of the Department of Electrical Engineering from 1981-1983, and then as permanent Chair from 1983-1995. A copy of my CV is attached as Exhibit 1.

4. If called upon to do so, I could and would testify truthfully as follows:

5. Based on my experience in the art and my study of the antenna designs disclosed in the asserted patents, a person of ordinary skill in the art would be an individual who, as of the relevant point in time, had an accredited master's degree in electrical engineering with an emphasis in electromagnetics, and at least 5 years of experience with antenna design; or alternatively had a doctorate in electrical engineering with an emphasis in electromagnetics, and at least 2 years of experience with antenna design.

6. I understand that a patent claim is invalid if it is indefinite. I further understand that to satisfy the definiteness requirement, a claim must inform a person of ordinary skill in the art of the claimed invention's scope with reasonable certainty when read in view of the specification and prosecution history.

7. I understand that defendants contend that the following claim terms as used in claim 38 of the '768 patent, claims 1, 9, and 11 of the '493 patent, and claim 8 of the '940 patent are indefinite: (i) "a wavelength of the [first/second] continuous frequency range"; (ii) "an operating wavelength of the first frequency range"; (iii) "an operating wavelength of the second contiguous

frequency range"; (iv) "wavelength of a [first/second] frequency band"; and (v) "operating wavelength of the [first/second] frequency band."

8. These claims are not indefinite because they inform a person of ordinary skill in the art of the scope of the claims with reasonable certainty when read in view of the specification and prosecution history. Specifically, the specification and claims, in light of the knowledge of a person of ordinary skill, provide clear notice of the boundaries of this claim limitation. The wavelength of an electromagnetic wave is the distance over which the waveform completes one cycle and then begins to repeat itself. As a person of ordinary skill knows, there is a simple formula for calculating the wavelength for a given frequency: wavelength = velocity of propagation / frequency. For a given range of frequencies, there is a corresponding range of wavelengths. Thus, a person of ordinary skill would understand that "a wavelength" of "a frequency range" means one of the wavelengths that corresponds to a frequency in the given range of frequencies. *See, e.g.*, '191 patent[1] at 2:2-7. A person of ordinary skill would also understand that the "operating wavelength" or "working wavelength" is just the wavelength resulting from the chosen (or working or operating) frequency. *See, e.g.*, '191 patent at 1:63-66, 2:22-28, 5:17-45, 7:21-25.

9. I understand that defendants contend that the claim term "a ratio between a working frequency of the third frequency band and a working frequency of the second frequency band is around 2.33/2" as used in claim 18 of the '493 patent is indefinite. This claim is not indefinite because it informs a person of ordinary skill in the art of the scope of the claim with reasonable certainty when read in view of the specification and prosecution history. Specifically, the specification and claim, in light of the knowledge of a person of ordinary skill, provide clear notice

[1] My citations are to the common specification of the '191 patent for the sake of consistency but the citations apply to the specific claims being discussed.

of the boundaries of this claim limitation. In this context, the term "around" means "approximately." This sort of approximation in antenna engineering is well understood. Since all practical electronic devices operate over some range or band of frequencies, the exact operating or working frequency varies over this prescribed bandwidth. So the ratio of two frequencies in separate frequency bands will vary around some central value, and thus, the ratio is given as an approximation.

10. I understand that defendants contend that the following claim terms as used in claims 12 and 14 of the '918 patent, claim 13 of the '768 patent, and claim 1 of the '493 patent are indefinite: (i) "wherein the working frequency bands are situated around 900 MHz and 1800 MHz"; (ii) "wherein the working frequency bands are situated around 900 MHz, 1800 MHz, and 2100 MHz"; (iii) "wherein at least one of the plurality of working frequency bands is situated around 1900 MHz"; and (iv) "an operating frequency of the first continuous frequency range is situated around 900 MHz and an operating frequency of the second continuous frequency range is situated around 1800 MHz."

11. These claims are not indefinite because they inform a person of ordinary skill in the art of the scope of the claims with reasonable certainty when read in view of the specification and prosecution history. Specifically, the specification and claims, in light of the knowledge of a person of ordinary skill, provide clear notice of the boundaries of this claim limitation. In the context of these claims, the phrase "situated around" means "includes." Thus, for example, when a "working frequency band[is] situated around 1900 MHz," this means that the working frequency band includes 1900 MHz within the frequency range. In antenna engineering a frequency band is often referred to by simply using an easy to remember single frequency that is within the band rather than always calling it by its lower and upper frequency limits. Also, as discussed above, a

person of ordinary skill would also understand that the "working frequency band" or "operating frequency" is just the chosen frequency band or frequency. *See, e.g.*, '191 patent at 1:15-18, 3:30-32, 3:35-37, 5:18-45, 6:3-7, 6:15-17, 6:35-42, 6:58-65, 7:56-62, 8:37-41, Figs. 3, 4, 7 & 8.

12. I understand that defendants contend that the following claim terms as used in claims 1, 11, and 18 of the '493 patent, claim 8 of the '940 patent, and claims 1, 6, 8, 11, and 12 of the '305 patent, are indefinite: (i) "…and substantially arranged along a first direction with respect to a longitudinal axis…"; (ii) "…substantially arranged along a longitudinal direction…"; (iii) "a plurality of antenna elements arranged on the ground plane layer along a longitudinal direction of the antenna array"; (iv) "…substantially vertical direction of the ground plane"; and (v) "at least the plurality of radiating elements of the first set and at least a plurality of radiating elements of the third set are substantially aligned with respect to a first vertical direction of the ground plane."

13. These claims are not indefinite because they inform a person of ordinary skill in the art of the scope of the claims with reasonable certainty when read in view of the specification and prosecution history. Specifically, the specification and claims, in light of the knowledge of a person of ordinary skill, provide clear notice of the boundaries of this claim limitation. In the context of these claims the word "substantially" means "approximately." This sort of approximation in antenna engineering is well understood. The device can function properly if the arrangement and geometry are substantially (approximately) as designed. Thus, elements that are "substantially arranged" along a direction are ones that are arranged approximately along that direction, but absolute precision is not required. A person of ordinary skill in the art would understand how to assess whether the elements were substantially arranged along a particular direction. Similarly, elements that are "substantially vertical" are ones that are approximately

vertical. Again, a person of ordinary skill in the art would understand how to assess whether the elements were substantially vertical.

14. I understand that defendants contend that the following claim terms as used in claims 17 and 31 of the '768 patent, claim 1 of the '870 patent, and claim 11 of the '256 patent, are indefinite: (i) "at least one mono-band antenna element of one of the plurality of mono-band antenna arrays operating at a first working frequency band of the plurality of working frequency bands is repositioned to coincide with a nearest mono-band antenna element of another one of the plurality of mono-band antenna arrays operating at a second working frequency band of the plurality of working frequency bands"; and (ii) "at least one first-band antenna element of the first antenna array is repositioned to coincide with a nearest second-band antenna element of the second antenna array."

15. These claims are not indefinite because they inform a person of ordinary skill in the art of the scope of the claims with reasonable certainty when read in view of the specification and prosecution history. Specifically, the specification and claims, in light of the knowledge of a person of ordinary skill, provide clear notice of the boundaries of this claim limitation. In the context of the patents, "repositioning" is one part of the process described in the patent for determining the location of the elements in the claimed multiband array. The patent provides clear instructions, which would be readily understood by a person of ordinary skill, for determining the position of the elements in the multiband array.

16. As described in the specification, the positions of the elements in a multiband interlaced antenna array are determined using the process described in the patent, which begins with the configurations of the mono-band arrays that cover each of the required frequency bands. *See, e.g.*, '191 patent at 2:62-3:10, 5:62-6:7, 6:24-57, 6:66-7:25, 8:29-50, Figs. 5-10. The

specification would be understood by a person of ordinary skill in the art to provide clear guidance with respect to the use and placement of multiband elements in the claimed multiband antenna array, the positioning of various elements in the array (including the repositioning of elements where the elements in the mono-band arrays do not come together in the same position), and the use of either a combination of mono-band and multiband elements or exclusively multiband elements in the array. The mono-band arrays are juxtaposed, meaning that they are overlapped to ascertain and compare the positions of the elements in each of the arrays. In those positions where the mono-band array elements come together, the patent directs that a multiband antenna element be used, with said multiband element capable of working simultaneously in the frequency bands of the mono-band antenna elements. In some instances the elements of the mono-band arrays do not come together or coincide (as will commonly be the case when the ratio between the frequency bands is not an integer) and the patent directs that in such circumstances that the elements be "repositioned," that is that the elements be moved so that elements of the different mono-band arrays do come together and so that the position of the multiband element can be determined. The specification provides clear guidance, which would be well understood by a person of ordinary skill in the art, as to where the elements should be repositioned to determine the specified location for the multiband element. This is illustrated in Figure 5 of the patent specification, among other places in the patent. The locations of the mono-band antenna elements in the mono-band arrays are shown in Figures 5.1 5.2, and 5.3. Figure 5.4 shows what the multiband antenna array configuration would be before repositioning. In order to provide the solution claimed in the patent, the specification describes in detail the repositioning of elements in order to determine a location where they come together and a multiband element can be used. Specifically, it directs that the lowest frequency antenna elements should be repositioned until they coincide with the nearest

highest frequency elements. Then the antenna elements that coincide in a particular position are replaced with a single multiband antenna element in that position. An example of the final configuration is shown in Figure 5.5. To be clear, the resulting multiband array may consist entirely of multiband elements, as clearly illustrated in Figure 7 and described at, *e.g.*, '191 patent at 2:58-3:5, 7:43-67.

17. I understand that defendants contend that the following claim terms as used in claims 1, 9, 16, 23, 30, and 38 of the '768 patent, and claims 1, 11, and 20 of the '870 patent, are indefinite: (i) "the electromagnetically-connected antenna elements are adapted to interact with each other to establish radio-electric characteristics with respect to radiation and impedance patterns that are similar in a plurality of working frequency bands"; and (ii) "the single multiband antenna element comprises a plurality of electromagnetically-coupled portions which are adapted to interact with each other to establish radio-electric characteristics of the single multiband antenna element with respect to radiation and impedance patterns that are similar in a plurality of the plurality of working frequency bands."

18. These claims are not indefinite because they inform a person of ordinary skill in the art of the scope of the claims with reasonable certainty when read in view of the specification and prosecution history. Specifically, the specification and claims, in light of the knowledge of a person of ordinary skill, provide clear notice of the boundaries of this claim limitation. A person of ordinary skill would understand the term referring to "radiation and impedance patterns" refers to radiation patterns and impedance. A "radiation pattern" is a graphical representation of the spatial radiation properties of an antenna as a function of angle and "impedance" is the ratio of the voltage and current at the feed point of the antenna. The radiation pattern of a base station antenna is important to provide coverage to the desired areas, without undesirable pattern characteristics

such as nulls that would limit coverage in the desired area. Matching the impedance of an antenna to the desired frequency band is important to ensure that the antenna operates efficiently—an antenna that is poorly matched for a given frequency range will not operate efficiently in that range, though it might operate efficiently at a different frequency range. It is therefore important that at the desired frequency ranges that the multiband antennas used in a base station antenna array have the correct radiation pattern and impedance at the frequencies of the frequency bands covered by that antenna.

19. A person of ordinary skill in the art would further understand that the geometry of a simple mono-band antenna can be adapted to provide similar radiation and impedance characteristics over multiple frequency bands. The multiband behavior of the antenna elements is the result of their geometry, which is made up of electromagnetically coupled portions or areas of the conducting structure that allow multiple current paths associated with operation at the various frequency bands. Non-exclusive examples of such multiband antennas are provided in the patent specification, including Fractus's own fractal, multi-triangular and multilevel antennas. *See, e.g.*, '191 patent at Figs. 7, 8, 11, 12, 5:10-15, 5:46-53, 7:43-67, 8:15-28, 9:29-55, 10:5-19. A person of ordinary skill in the art would understand that while such multiband antennas may include geometries where one discrete part of the antenna (for example, one patch in a stacked or dual patch antenna) may be principally associated with operation at a given frequency, for other such multiband antennas (including the multiband antennas specifically referenced in the patents) there are no discrete, separate sections that are associated with operation on only one frequency. Rather, the portions of such multiband antennas that allow for operation or resonances at both larger and smaller frequencies may be overlapping. When the overall structure is fed, depending on the frequency chosen, either all the conducting portions (which are also described in the patent as

elements, though using a different meaning than that in the claims of the patent) or some subset of the portions will be "active" and provide the required radiation characteristics.

I declare under penalty of perjury that the statements above are true and correct.

Executed this 14th Day of January, 2019.

Stuart A. Long

Dr. Stuart A. Long

CERTIFICATE OF SERVICE

I certify that the foregoing document was served by electronic mail on January 14, 2019, and has been served on all counsel who have consented to electronic service.

/s/ Alexandra Fellowes

EXHIBIT 1

CURRICULUM VITAE

Stuart A. Long

Professor, Department of Electrical and Computer Engineering
University of Houston
Houston, TX 77204-4005

Telephone: (713) 743-4445
FAX: (713) 743-4444
E-Mail: long@uh.edu

EDUCATION

Ph.D	Harvard University Cambridge, Mass.	1974 Applied Physics (Electromagnetics)
M.E.E.	Rice University Houston, Texas	1968 Electrical Engineering
B.A.	Rice University Houston, Texas	1967 Electrical Engineering

HONORS

Phi Beta Kappa, Tau Beta Pi, B.A. granted magna cum laude, Hamilton Award as outstanding engineering graduate 1968, NSF Fellowship, Sigma Xi, Member of the Electromagnetics Academy, Fellow of the IEEE, 1991, IEEE Antennas and Propagation Society Distinguished Lecturer 1992-94, Engineering Alumni Association Distinguished Engineering Faculty Award, 1992, College of Engineering Senior Research Award, 1995, President IEEE Antennas and Propagation Society, 1996, IEEE Millennium Medal, 2000, University of Houston Alumni Organization Outstanding Faculty Award, 2002, elected to IEEE Board of Directors, 2005-2006; Fluor-Daniel Faculty Excellence Award, 2006; IEEE Antennas and Propagation Society Outstanding Service Award, 2007, Esther Farfel Award, 2010, Life Fellow of IEEE, 2011; White House Award for President's Higher Education Community Service, 2013; IEEE Antennas and Propagation Society John Kraus Award, 2014, IEEE Chen-To Tai Distinguished Educator Award, 2018.

PROFESSIONAL EXPERIENCE

2006-present	Associate Dean for Undergraduate Research and the Honors College, University of Houston
1974-present	Faculty member, Department of Electrical and Computer Engineering, University of Houston, Assistant Professor 1974-1979, Associate Professor 1979-1985, Professor 1985-present
1986-present	Registered Professional Engineer – State of Texas
2010 – 2011	Interim Vice Chancellor/Vice President for Research and Technology Transfer, U. of Houston
2008-2009	Interim Dean, Honors College, University of Houston
2002-2008	Associate Dean for Educational Activities, College of Engineering, Univ. of Houston
2000-2002	Associate Dean for Research Activities, College of Engineering, University of Houston
1998-1999	Interim Chair, Department of Electrical and Computer Engineering, University of Houston
1995-1998	Associate Dean, College of Engineering, University of Houston

1984-1995	Chairman, Department of Electrical and Computer Engineering, University of Houston
1981-1983	Acting Chairman, Department of Electrical Engineering, University of Houston
1978-1981	Director of Graduate Studies, Department of Electrical Engineering, University of Houston
1971-1974	Research Assistant in Applied Physics, Harvard University, Cambridge, MA
1970-1971	Teaching Fellow in Applied Mathematics, Harvard University, Cambridge, MA
Summer 1970-71	Research Associate, Los Alamos Scientific Laboratories, Los Alamos, NM; Linear Accelerator Design.
1968-1969	Aerosystems Engineer, General Dynamics, Fort Worth, TX; Antenna System Design.
Summer 1967	Engineer, Collins Radio, Dallas, TX; R.F. Amplifier Design

RECOGNITION OF TEACHING

Nomination for C. Holmes MacDonald Distinguished Young Electrical Engineering Teacher Award by local Eta Kappa Nu Chapter, 1977, 1978, 1980.

Letter of Commendation from Effective Instruction Committee, 1975, 81, 82, 83, 85, 91, 92, 93. 94, 95

Kittinger/Halliburton Award as Outstanding Teacher in the College of Engineering, 1983.

University Teaching Excellence Award, 1991.

Runner-up for Kittinger/Halliburton Award as Outstanding Teacher in the College of Engineering, 1991.

Engineering Alumni Association Distinguished Engineering Faculty Award, 1992.

IEEE-HKN Outstanding Electrical Engineering Teacher, 1994.

IEEE Region 5 Educator of the Year, 2003.

Fluor-Daniel Faculty Excellence Award, 2006.

Career Teaching Award, College of Engineering, University of Houston, 2008

University Career Teaching Excellence Award, 2009.

University Group Teaching Excellence Award, 2014

MENTORING OF UNDERGRADUATES

An informal program to encourage participation of undergraduates in research in applied electromagnetics has been undertaken for the past 40 years. During this time over 90 students have become EMUGs (electromagnetic undergrads) and about 45 have gone on to receive their graduate degree here at the University of Houston. Almost all of the others have either gone to graduate school elsewhere or taken industrial positions in the EM area. We have also been the recipient of three separate NSF Research Experiences for Undergraduates (REU) Site Grants. These programs have allowed 12-15 undergraduates from universities around the country to come to UH for each of the past ten summers. Each student is

given the opportunity to learn about research in a very direct and personal way.

TEACHING

Courses Taught:
ECE 5318/6352 Antenna Engineering 1999-present.
ECE 3317 Applied Electromagnetic Waves 1998-present
ELEE 4338 Applied Electromagnetics 1974-1980
ELEE 4337 Electromagnetic Waves 1974-1997
ELEE 7397 Scattering and Diffraction 1975
ELEE 5337 Microwave Engineering 1974, 78, 81, 83, 84, 86, 89, 90, 92, 94, 96, 98
ELEE 5338 Antenna Engineering 1975, 77, 84, 85, 86, 87, 88, 89, 91, 93, 95, 97.
ELEE 2335 Fundamentals of Electrical Networks 1977
ELEE 7397 Microwave Methods of NDE 1978
ELEE 4118 Electromagnetics Laboratory 1978-83
ELEE 7396 Advanced Topics in Electromagnetic Waves 1980

Courses Originated:
ECE 5317/6352 Antenna Engineering
ECE 3317 Electromagnetic Waves
ELEE 5337 Microwave Engineering
ELEE 7397 Scattering and Diffraction of Electromagnetic Waves
ELEE 7397 Microwave Methods of Nondestructive Evaluation
ELEE 4118 Electromagnetics Laboratory
ELEE 7396 Advanced Topics in Electromagnetic Waves

Special Course:
Libyan Summer Program, Electromagnetics 1978

CONSULTING ACTIVITIES

Lockett Embry and Cantey
Wayne Duddlesten Interests (retaining party) vs. American Antenna, No. 9789835, 190th District Court, Harris County, Texas
September 1978 – March 1980
Television antennas

Honeywell Defense Systems
January 1982 – February 1982
Microstrip antenna arrays

Griffin and Laser, LLP (later became Jackson and Walker, LLP)
Mercedes Jovel, et al. v. Martin Fein Interests, Inc., d/b/a Martin Fein Management Company et al. (retaining party), No. 92-37126, 164th Judicial District Court, Harris County, Texas
Martin Fine Management Company
August 1993 – February 1996 (deposition testimony)
Air conditioner failure

Olson and Olson
Orin Snook v. City of Missouri City, TX (retaining party), No. Civ.A.H 03 243

July 2001 – May 2003 (trial testimony)
City of Missouri City, TX
Radio antenna

Taylor, Dunham and Burgess, L.L.P
Aerielle, Inc. (retaining party) vs. Monster Cable Products, Inc., No. 2:06-CV-00382
April 2007- July 2007
FM transmitter and antenna

Goodman Manufacturing, LP (nonlegal)
March 2010
Electromagnetic inventory control system

Susman Godfrey, L.L.P.
Heim, Payne & Chorush, L.L.P.
Fractus, SA, v. Samsung Electronics Co., Ltd., et al., No. 6:09-cv-00203
February 2009 – May 2011 (deposition and trial testimony)
Cell phone antennas

Heim, Payne & Chorush, L.L.P
Commonwealth Scientific & Indus. Research Org. v. Lenovo et al., Case 6:09-cv-399-LED
November 2011 – April 2012 (deposition)
Wireless communications

Steptoe & Johnson, L.L.P.
Quintel Technology Ltd. V. Huawei Technologies USA, Inc., No. 4:15-cv-00307
July 2017 – March 2018 (deposition)
Cellular base station antennas

SUPERVISION OF RESEARCH

Pierre B. Morel, "A Theoretical Investigation of the Circular Disc Antenna," M.S.E.E., 1976.

Martin R. Allerding, "An Experimental Investigation of the Circular Disc Antenna," M.S.E.E., 1976.

Weiming Ou, "Nondestructive Measurement of Thickness and Dielectric Constant of a Dielectric Layer on a Conductive Substrate by Means of Surface Electromagnetic Waves," M.S.E.E., 1979.

Afroz J.M. Zaman, "A Theoretical Investigation of Eddy Current Response to Subsurface Flaws for Application in Nondestructive Evaluation," Ph.D., 1981.

Farrokh Attarzadeh, "Generalized Matrix Sign Function for Problems in Systems Theory," Ph.D., 1983.

Mark McAllister, "The Resonant Dielectric Antenna: Experiment and Theory," Ph.D, 1983.

Shayla E. Dennis, "Experimental Study of Reactively Loaded, Dual-Frequency Microstrip Antennas," M.S.E.E., 1984.

Esin Chang, "An Experimental Study of Electrically Thick Rectangular Microstrip Antennas," M.S.E.E., 1985.

Shaymal Bhattacharya, "A Study of the Admittance Characteristics of a Monopole Antenna Attached to a Conducting Box," M.S.E.E., 1986.

Heriberto Delgado, "Antenna Pattern Measurement Techniques for Infinite Ground Plane Simulation through Diffraction

Elimination," M.S.E.E., 1988.

Roger Kranenburg, "Planar Transmission Line Excitation of Dielectric Resonator Antennas," M.S.E.E., 1988.

Andrew Chu, "The Radiation Patterns of a Monopole Antenna Mounted on a Cubical Conducting Box," M.S.E.E., 1989.

Steven Slawson, "Development of Dual Band, Circularly Polarized, Reactively Loaded Microstrip Antennas", M.S.E.E., 1989.

Alan MacDonald, "Microwave Characterization of High Tc Superconductors Using Planar Transmission Line Resonators," M.S.E.E., 1989.

Shuhua Jiang, "Survey of Beaming Properties of an Extremely Large Phased Array on the Limb of the Moon," M.S.E.E., 1992

Timothy Harrington, "Open Resonators for Anisotropic Superconductor and Dielectric Testing", M.S.E.E., 1996.

Lorena Basilio, “Investigation of Tunable Microstrip Antennas Using Ferroelectrics”, M.S.E.E., 1998 (20% co-advisor with J.T. Williams - 50%; D.R. Jackson. - 30%)

Amit Mehrotra, “An Annular-Ring Reduced Surface Wave Antenna”, ”, M.S.E.E., 1998 (20% co-advisor with D. R. Jackson - 50% and J.T. Williams - 30%)

Dawei Li, “Analysis and Design of a Scanable Microstrip Array”, Ph.D. 1998 (20% co-advisor with J.T. Williams - 50%; D.R. Jackson. - 30%)

Michael Khayat, “Mutual Coupling Between Shorted Annular Ring Reduced Surface Wave Microstrip Antennas”, M.S.E.E. 1999 (20% co-advisor with J.T. Williams - 50%; D.R. Jackson. - 30%)

Vickie Davis, “Investigation of the Shorted Annular Ring Reduced Surface Wave Microstrip Antenna”, Ph.D. 2000, (20% co-advisor with J.T. Williams - 50%; D.R. Jackson. - 30%)

Lorena Basilio, “Investigation of Tunable Microstrip Antennas”, Ph.D., 2003 (20% co-advisor with J.T. Williams - 50%; D.R. Jackson. - 30%)

Timothy Kennedy, “Effects of Magnetic Material Coating and Choke Loading on the Impedance and Radiation Pattern of a Monopole Antenna”, MS, 2003.

Michael Khayat, “Mutual Coupling Between Reduced Surface Wave Microstrip Antennas”, Ph.D. 2004 (20% co-advisor with J.T. Williams - 50%; D.R. Jackson. - 30%)

Andrew Walsh, “An Investigation of Stacked and Embedded Dielectric Resonator Antennas”, MS, 2004.

Kathleen Akkerman, “The Analysis and Control of Radiation from Conducting Structures Using Characteristic Modes”, MS, 2005.

Chris De Young, “An Investigation of Wideband Dielectric Resonator Antennas”, M.S., 2005.

Timothy Kennedy, “Design of Wireless Antennas by Modification and Control of Currents on Electrically Large Conducting Structures”, PhD, 2006.

Myriam Lopez, “Demonstrations of Concepts in Electromagnetism”, MEE, 2006.

Flora Ip, “Cryogenic Phased Array for High Resolution Magnetic Resonance Imaging (MRI): Assessment of Clinical and

Research Applications", PhD, 2009. (Co-advisor with J. Wosik)

Charles Holland, "Bore Hole Slot Antenna", MS, projected Dec 2012, but not completed.

Adam Phuc Huynh, "Reduced Surface Wave Dielectric Resonator Antenna", PhD, May 2012.

Ellen O'Connor, "High Gain Leaky Wave Antennas", MS, May 2012.

Nicolas Boggs, "A Cylindrical Dielectric Surface-Wave Antenna, MS, May 2014

Sohini Sengupta, "Properties of Microwave and Optical 2-D Periodic Leaky Wave Antennas", PhD, August 2016.

Krishna Kota, "Multiband Fabry-Pérot Resonant Cavity Antennas", PhD, August. 2016.

Orin H. Council, "Reduction of a Radar Cross Section Using Active Antenna Elements", MS, August 2017.

CONTINUING EDUCATION

New Engineering Educators Symposium, ASEE Conference, 1975
Organizer and instructor for short course entitled "High Temperature Superconductors and their Applications in Antenna Systems," International Antennas and Propagation Symposium, London, Ontario, June 1991.

SPECIAL HONORS FOR RESEARCH

Editorial Board of the Journal of Electromagnetic Waves and Application 1986-90.

Elected to membership in the Electromagnetics Academy, 1990

Elected as Fellow of the IEEE, "for contributions to the development of microstrip and dielectric resonator antennas," 1991.

Named as IEEE Antennas and Propagation Society Distinguished Lecturer, 1992-94.

College of Engineering, University of Houston, Senior Research Award, 1995.

Fluor-Daniel Faculty Excellence Award, 2006.

IEEE Antennas and Propagation Society John Kraus Award, 2014

IEEE Antennas and Propagation Society Chen-To Tai Distinguished Educator Award, 2018.

PANEL SERVICE AND SESSION CHAIRS

NSF Panel Member, Combined Research - Curriculum Development Program, 1998.

Session Chair, IEEE Antennas and Propagation Society International Symposium, "Microstrip Antenna Element Design, Atlanta, 1998.

NSF Panel Member, Faculty Early Career Development (CAREER) Program, 1999.

Session Chair, IEEE Antennas and Propagation Society International Symposium, "Microstrip Antennas and Circuits,

Orlando, 1999

NSF Panel Member, Division of Electrical and Communication Engineering, Electronics, Photonics, and Devices Program, 2000.

NSF Panel Member, Faculty Early Career Development (CAREER) Program, 2000.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Phased Arrays and Applications”, Salt Lake City, 2000

NSF Panel Member, Division of Electrical and Communication Engineering, Electronics, Photonics, and Devices Program, 2001.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “The Career of Professor R.W.P. King”, Boston, July 2001

NSF Panel Member, Faculty Early Career Development (CAREER) Program, 2001.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Effects of Loading and the Environment on Antennas”, San Antonio, June 2002.

NSF Panel Member, Division of Electrical and Communication Engineering, Electronics, Photonics, and Devices Program, 2002.

NSF Panel Member, Faculty Early Career Development (CAREER) Program, 2002.

Session Chair, IEEE Antennas and Propagation Society International Symposium, "Wire Antenna Radiation and Impedance Control”, Columbus, June 2003.

NSF Panel Member, Division of Electrical and Communication Engineering, Electronics, Photonics, and Devices Program, 2003.

NSF Panel Member, Faculty Early Career Development (CAREER) Program, 2003.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Narrowband Dielectric Resonator Antennas”, Monterey, CA, June 2004

NSF Panel Member, Division of Electrical and Communication Engineering, Electronics, Photonics, and Devices Program, 2004.

NSF Panel Member, Faculty Early Career Development (CAREER) Program, 2004

NSF Panel Member, ECS Integrative Systems, 2005.

NSF Panel Member, ECS Electromagnetic Systems, 2005.

NSF Panel Member, Committee of Visitors, 2005.

NSF Panel Member, ECS Sensors Program, 2005.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Microstrip Antenna Systems”, Washington, DC, July 2005.

NSF Panel Member, Course, Curriculum, and Laboratory Improvement (CCLI) program, July 2006.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Feed Designs for Microstrip Antennas”, Albuquerque, NM, July 2006.

NSF Panel Member, Research Experiences for Teachers (RET) program, January 2008.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Dielectric Resonator Antennas”, San Diego, CA, July 2008.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Electromagnetic Theory”, Charleston SC, June 2009.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Dielectric Resonator Antennas”, Charleston SC, June 2009.

NSF Panel Member, Nanotechnology Undergraduate Education (NUE) program, July 2009.

NSF Panel Member, SSTEM program, November 2009.

NSF Panel Member, STEP program, November 2009.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Microstrip Antennas”, Toronto, Canada, July 2010.

NSF Panel Member, SSTEM program, November 2010

Sandia National Laboratories Review Committee, Albuquerque, NM, April 2011.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Dielectric Resonator Antenna Applications”, Spokane, WA, July 2011.

NSF Panel Member, STEP program, November 2011.

NSF Panel Member, SSTEM program, January 2013.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Dielectric Resonator Antenna Applications”, Memphis, TN, July 2014.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “The History of the Antennas and Propagation Society”, Memphis, TN, July 2014.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Dielectric Resonator Antenna Applications”, Memphis, TN, July 2014.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Dielectric Resonator Antennas”, Vancouver, BC, July 2015.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “Dielectric Resonator Antennas”, Fajardo, Puerto Rico, June 2016.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “The History of AP-S: Significant Achievements in Antenna Design, Analysis, and Education”, Fajardo, Puerto Rico, June 2016.

Session Chair, IEEE Antennas and Propagation Society International Symposium, “The History of AP-S: Early Legends of

the Field", San Diego, CA, July 2017.

REFEREED PUBLICATIONS

1. "Tangential Electrical Field Near a Driven Thin Cylindrical Antenna," (L.D. Scott, D.V. Giri, and S.A. Long), IEEE Trans. Antennas and Propagation, Vol. AP-21, pp. 213-216, March 1973.

2. "Experimental Study of the Impedance of Cavity-Backed Slot Antennas," IEEE Trans. Antennas and Propagation, Vol. AP-23, pp. 1-7, January 1975.

3. "A Combination of Linear and Slot Antennas for Quasi-Isotropic Coverage," IEEE Trans. Antennas and Propagation, Vol. AP-23, pp. 572-576, July 1975.

4. "The Resonant Frequency of a Circular Disc, Printed-Circuit Antenna," (L.C. Shen, S.A. Long, M.R. Allerding, and M.D. Walton), IEEE Trans. Antennas and Propagation, Vol. AP-25, pp. 595-596, July 1977.

5. "A Mathematical Model for the Impedance of the Cavity-Backed Slot Antenna," IEEE Trans Antennas and Propagation, Vol. AP-25, pp. 829-833, November 1977.

6. "Theory of the Circular-Disc Printed-Circuit Antenna," (S.A. Long, L.C. Shen and P.B. Morel), Proc. IEE, Vol. 125, pp. 925-928, October 1978.

7. "The Impedance of the Circular-Disc Printed-Circuit Antenna," (S.A. Long, L.C. Shen, M.D. Walton, and M.R. Allerding), Electronics Letters, Vol. 14, No. 21, pp. 684-687, October 12, 1978.

8. "A Dual Frequency, Stacked Circular Disc Antenna," (S.A. Long and M.D. Walton), IEEE Trans. Antennas and Propagation, Vol. AP-27, pp. 270-273, March 1979.

9. "Measurement of the Radiated Fields of a Buried Antenna at VHF," (F. Vaziri, S.C.F. Huang, S.A. Long and L.C. Shen), Radio Science, Vol. 15, pp. 743-744, July 1980.

10. "The Impedance of a Single-Turn Coil Near a Conducting Half Space," (A.J.M. Zaman, C.G. Gardner and S.A. Long), Journal of Nondestructive Evaluation, Vol. 1, No. 3, pp. 183-189, September 1980.

11. "An Experimental Study of the Circularly Polarized, Elliptical Printed-Circuit Antenna," (S.A. Long, L.C. Shen, D.H. Schaubert and F. Farrar), IEEE Trans. Antennas and Propagation, Vol. AP-29, pp. 95-99, January 1981.

12. "Impedance of a Loop Surrounding a Conducting Cylinder," (A.J.M. Zaman, C.G. Gardner and S.A. Long), IEEE Trans. Instrumentation and Measurement, Vol. IM-30, pp. 41-45, March 1981.

13. "The Change in Impedance of a Single-Turn Coil Due to a Flaw in a Conducting Half Space," (A.J.M. Zaman, C.G. Gardner and S.A. Long), Journal of Nondestructive Evaluation, Vol. 3, No. 1, pp. 39-45, March 1982.

14. "The Impedance of an Elliptical Printed-Circuit Antenna," (S.A. Long and M.W. McAllister), IEEE Trans. Antennas and Propagation, Vol. AP-30, pp. 1197-1200, November 1982.

15. " Nondestructive Measurement of a Dielectric Layer Using Surface Electomagnetic Waves," (Weiming Ou, C.G. Gardner and S.A. Long), IEEE Trans. Microwave Theory and Techniques, Vol. MTT-31, pp. 255-261, March 1983.

16. "Rectangular Dielectric Resonator Antenna," (M.W. McAllister, S.A. Long, and G.L. Conway), Electronics Letters, Vol. 19, No. 6, pp. 218-219, March 17, 1983.

17. "The Resonant Cylindrical Dielectric Cavity Antenna," (S.A. Long, M.W. McAllister and L.C. Shen), IEEE Trans. Antennas and Propagation, Vol. AP-31, pp. 406-412, May 1983.

18. "Experimental Measurements of the Eddy Current Signal Due to a Flawed, Conducting Half Space," (S.A. Long, S. Toomsawasdi, and A.J.M. Zaman), Nondestructive Testing Communications, Vol 1, No. 3, pp. 105-110, 1983.

19. "Experimental and Theoretical Investigation of the Inductance Associated with a Microstrip Antenna Feed," (W.F. Richards, J.R. Zinecker, R.D. Clark, and S.A. Long), Electromagnetics, Vol. 4, No. 3-4, pp. 327-346, September 1983.

20. "The Change in Impedance of a Single-Turn Coil Due to a Flaw in a Coaxial Conducting Cylinder," (A.J.M. Zaman, S.A. Long, C.G. Gardner and W.F. Richards), IEEE Trans. Instrumentation and Measurements, Vol. IM-33, No. 1, pp. 5-10, March 1984.

21. "A Theoretical and Experimental Investigation of Annular, Annular Sector, and Circular Sector Microstrip Antennas," (W.F. Richards, J.D. Ou, and S.A. Long), IEEE Trans. Antennas and Propagation, Vol. AP-32, pp. 864-867, August 1984.

22. "Resonant Hemispherical Dielectric Antenna," (M.W. McAllister and S.A. Long), Electronics Letters, Vol. 20, No. 16, pp. 657-659, August 2, 1984.

23. "Dual Band, Reactively Loaded Microstrip Antenna," (W.F. Richards, S.E. Davidson, and S.A. Long), IEEE Trans. Antennas and Propagation, Vol. AP-33, pp. 556-561, May 1985.

24. "Determining Intraocular Lens Power Within the Eye," (J.T. Holladay, S.A. Long, J.W. Lewis, T.C. Prager, C.E. Koester, K.A. Bourgeois, and T.L. Winn), American Intraocular Implant Society Journal, Vol. 11, pp. 353-363, July 1985.

25. "Dual-Band Microstrip Antennas with Monolithic Reactive Loading," (S.E. Davidson, S.A. Long, W.F. Richards), Electronics Letters, Vol. 21, No. 20, pp. 936-937, September 26, 1985.

26. "An Experimental Investigation of Electrically Thick Rectangular Microstrip Antennas," (E. Chang, S.A. Long, and W.F. Richards), IEEE Trans. Antennas and Propagation, Vol. AP-34, pp. 767-772, June 1986.

27. "The Input Impedance of the Dielectric Resonator Antenna," (S.A. Long and M.W. McAllister), International Journal of Infrared and Millimeter Waves, Vol. 7, No. 4, pp. 555-570, 1986.

28. "Reactively Loaded Microstrip Antennas," (W.F. Richards and S.A. Long), IEEE Antennas and Propagation Society Newsletter, Vol. 28, No. 5, pp. 11-17, October 1986.

29. "The Input Impedance of a Monopole Antenna Mounted on Cubical Conducting Box," (S. Bhattacharya, S.A. Long, and D.R. Wilton), IEEE Trans. Antennas and Propagation, Vol. AP-35, pp. 756-762, July 1987.

30. "Resonant Frequency of Electrically Thick Rectangular Microstrip Antennas," (R. Garg and S.A. Long), Electronics Letters, Vol. 23, No. 21, pp. 1149-1151, October 8, 1987.

31. "An Improved Formula for the Resonant Frequencies of the Triangular Microstrip Patch Antenna," (R. Garg and S.A. Long), IEEE Trans. Antennas and Propagation, Vol. AP-36, No. 4, p. 570, April 1988.

32. "Microstrip Transmission Line Excitation of Dielectric Resonator Antennas," (R. Kranenburg and S.A. Long), Electronics Letters, Vol. 24, No. 18, pp. 1156-1157, September 1, 1988.

33. "Impedance Control of Microstrip Antennas Using Reactive Loading," (A. Ali-Khan, W.F. Richards, and S.A. Long), IEEE Trans. Antennas and Propagation, Vol. 37, No. 2, pp. 247-251, February 1989.

34. "Subtraction of Edge Diffracted Fields in Antenna Radiation Patterns for the Simulation of an Infinite Ground Plane," (H.J. Delgado, J.T. Williams, and S.A. Long), Electronics Letters, Vol. 25, No. 11, pp. 694-695, May 25, 1989.

35. "A Moment Method Design Procedure for an Array of EMC Dipoles," (D.R. Jackson, A.E. Dinbergs, and S.A. Long),

IEEE Trans. Antennas Propagation, Vol. AP-38, No. 5, pp. 766-770, May 1990.

36. "Microstrip Characterization of High Temperature Superconducting Thin Films Using a Stripline Resonator," (A.D. MacDonald, S.A. Long, J.T. Williams, D.R. Jackson, C.L. Lichtenberg, M.L. Davis, J.L. Wosik, and J.C. Wolfe), Microwave and Optical Technology Letters, Vol. 3, No. 6, pp. 221-224, June 1990.

37. "High Temperature Superconductors and Their Application in Passive Antenna Systems," (J.T. Williams and S.A. Long), IEEE Antenna and Propagation Society Magazine, Vol. 32, No. 4, pp. 7-18, August 1990.

38. "Antenna Pattern Measurement Technique for Eliminating the Fields Scattered from the Edges of a Finite Ground Plane," (H.J. Delgado, J.T. Williams, and S.A. Long), IEEE Trans. Antennas and Propagation, Vol. AP-38, No. 11, pp. 1815-1822, November 1990.

39. "The Radiation Pattern of a Monopole Antenna Attached to a Conducting Box," (A.W. Chu, S.A. Long, and D.R. Wilton), IEEE Trans. Antennas and Propagation, Vol. AP-38, No. 12, pp. 1907-1912, December 1990.

40. "Coplanar Waveguide Excitation of Dielectric Resonator Antennas," (R.A. Kranenburg, S.A. Long, and J.T. Williams), IEEE Trans. Antennas and Propagation, Vol. AP-39, No. 1, pp. 119-122, January 1991.

41. "Comments on an Improved Formula for the Resonant Frequency of a Triangular Microstrip Antenna," (R. Garg and S.A. Long), IEEE Trans. Antennas and Propagation, Vol. AP-39, No. 9, pp. 1444-1445, September 1991.

42. "High Temperature Superconductors," (S.A. Long and J.T. Williams), IEEE Potentials, Vol. 10, No. 4, pp. 37-40, December 1991.

43. "Dipoles and Monopoles," (C.T. Tai and S.A. Long), Antenna Engineering Handbook, McGraw Hill, 1992.

44. "Microstrip Patch Designs Which Do Not Excite Surface Waves," (D.R. Jackson, J.T. Williams, A.K. Bhattacharyya, R.L. Smith, S.J. Buchheit, and S.A. Long), IEEE Trans. Antennas Propagation, Vol. 41, No. 8, pp. 1026-1037, August 1993.

45. "Nonlinear Behavior in the Power-Dependent Surface Resistance of High-Tc Superconducting Thin Films: Heating Effects," (J.Wosik, L.M. Xie, D. Li, J.H. Miller, Jr., and S.A. Long), Czechoslovak Journal of Physics, Vol. 46, p. 1133, 1996.

46. "Computer-Aided Design of Rectangular Microstrip Antennas", (D.R. Jackson, S.A. Long, J.T. Williams, and V.B. Davis), Advances in Microstrip and Printed Antennas, pp. 223-271, 1997.

47. "Superconducting Microstrip Antennas", (J.T. Williams, J.D. Morrow, D.R. Jackson, and S.A. Long), Advances in Microstrip and Printed Antennas, pp. 325-370, 1997

48. "Open Resonator Mode Patterns for Characterization of Anisotropic Dielectric Substrates for HTS Thin Films", (T. Harrington, J. Wosik, and S.A. Long), IEEE Transactions on Applied Superconductivity. Vol. 7, No. 2, pp 1861-1864, 1997.

49. "Thermally-Induced Nonlinearities in the Surface Impedance of Superconducting YBCO Thin Films", (J. Wosik, D. Li, L.M. Xie, J.H. Miller, Jr.,and S.A. Long), IEEE Transactions on Applied Superconductivity, Vol. 7, No. 2, pp. 1470-1473, 1997.

50. "Power Handling Capabilities of Superconducting YBCO Films: Thermally Induced Nonlinearity Effects", (J. Wosik, L.M. Xie, K. Nesteruk, D. Li, J.H. Miller, Jr., and S.A. Long), Jounal of Superconductivity, Vol. 10, pp. 97-108, 1997.

51. “Microwave Power Handling Capability of HTS Superconducting Thin Films: Weak Links and Thermal Effects Induced Limitation”, (J. Wosik, L.M. Xie, R. Grabovickic. T. Hogan, and S.A. Long), IEEE Transactions on Applied

Superconductivity, Vol. 9, pp. 2456-2459, June 1999.

52. "Circularly Polarized 20 GHz High Temperature Superconducting Microstrip Antenna Array," (J.D. Morrow, J.T. Williams, M.F. Davis, D. Licon, D.H.R. Rampersad, D.R. Jazdyk, S.A. Long, and J.C. Wolfe), IEEE Trans. Applied Superconductivity, Vol. 9, pp.4725-4732, Dec. 1999.

53. "Mutual Coupling Between Reduced Surface-Wave Microstrip Antennas", M. A. Khayat, J. T. Williams, D. R. Jackson and S. A. Long, IEEE Trans. Antennas Propagation, Vol. 48, pp. 1581-1593, Oct. 2000.

54. "The Dependence of the Input Impedance on Feed Position of Probe and Microstrip Line Fed Patch Antennas", L. I. Basilio, M. A. Khayat, J. T. Williams, and S. A. Long, IEEE Trans. Antennas Propagation, Vol. 49, pp. 45-47, Jan. 2001.

55. "Use of Parasitic Strip to Produce Circular Polarisation and Increased Bandwidth for Cylindrical Dielectric Resonator Antenna", R.T. Long, R.J. Dorris, S.A. Long, M.A. Khayat, and J.T. Williams, Electronics Letters, Vol. 37, No. 7, pp. 406-408, Mar. 2001.

56. "Mutual Coupling between Cylindrical, Probe-Fed, Dielectric Resonator Antennas", R.J. Dorris, R.T. Long, S.A. Long, M.A. Khayat, and J.T. Williams, IEEE Antennas and Wireless Propagation Letters, Vol. 1, No. 1, pp. 8-9, Jan 2002.

57. "Characterization of Ferromagnetic Perovskites for Magnetically Tunable Microwave Superconducting Resonators", J. Wosik, L.-M. Xie, M. Strikovski, P. Przyslupski, M. Kamel, V. V. Srinivasu, and S. A. Long, ,Journal of Applied Physics, Vol.91, No. 8, pp. 5384-5390, April 2002.

58. "Investigation of Low Profile, Conformable, Dielectric Resonator Antennas", Benjamin J. Fasenfest, Andrew G. Walsh, Christopher S. De Young, Timothy F. Kennedy, Stuart A. Long, and Jeffery T. Williams, Electronics Letters, Vol. 39, No. 1, pp. 12-13, Jan. 9, 2003.

59. "Investigation of Impedance and Radiation Properties of Dual-Frequency Choke-Loaded Monopole Antennas", (T.F. Kennedy, S.A. Long, and J.T. Williams), Electronics Letters, Vol. 39, No. 6, pp. 490-491, Mar. 20, 2003.

60. "Overview of the Dielectric Resonator Antenna", K.W. Leung and S.A. Long, Dielectric Resonator Antennas, Research Studies Press, pp. 1-54, 2003.

61. "Modification and Control of Currents on Monopole Antennas Using Magnetic Bead Loading", Timothy F. Kennedy, Stuart A. Long, and Jeffery T. Williams, IEEE Antennas and Wireless Propagation Letters, Vol.2, pp.208-211, Nov. 2003.

62. "Modification of Properties of Long Monopole Antennas Using Dielectric and Magnetic Beads", Timothy F. Kennedy, Stuart A. Long, and Jeffery T. Williams, IEEE Antennas and Wireless Propagation Letters, Vol.3, pp.165-168, May. 2004

63. "Scan Impedance of RSW Microstrip Antennas in a Finite Array", (R.L. Chen, D.R. Jackson, J.T. Williams, and S.A. Long), IEEE Trans. Antennas and Propagation, Vol. AP-53, No. 3, pp. 1098-1104, March 2005.

64. "The 67-Year Career at Harvard University of Professor Ronold W.P. King: Recollections of an Ex-Student", Stuart A. Long, IEEE Antennas and Propagation Magazine, Vol. 48, No. 2, pp. 84-89, Apr. 2006.

65. "An Investigation of Stacked and Embedded Cylindrical Dielectric Resonator Antennas", (A.G. Walsh, C. S. De Young, and S.A. Long), IEEE Antennas and Wireless Propagation Letters, Vol 5, pp. 130-133, 2006.

66. "Wideband Cylindrical and Rectangular Dielectric Resonator Antennas", C. S. De Young and S. A. Long, IEEE Antennas and Wireless Propagation Letters, Vol. 5, pp.426-429, 2006.

67. "Modification and Control of Currents on Electrically Large Wire Structures Using Composite Dielectric Bead Elements", Timothy F. Kennedy, Kathleen A. Fasenfest, Stuart A. Long, and Jeffery T. Williams, IEEE Trans. Antennas and Propagation, Vol. AP-54, No. 12, pp. 3608 – 3613, Dec. 2006.

68. "Dipoles and Monopoles," (C.T. Tai and S.A. Long), Antenna Engineering Handbook, McGraw Hill, 2007.

69. "Characterization of the Input Impedance of the Inset-Fed Rectangular Microstrip Antenna", Ying Hu, David R. Jackson, Jeffery T. Williams, Stuart A. Long, and Varada Rajan Komanduri, IEEE Transactions Antennas Propagation, Vol. 56, pp. 3314-3318, Oct. 2008.

70. "Extension of the Hansen-Woodyard Condition for Endfire Leaky-Wave Antennas", Ellen M. O'Connor, David R. Jackson, and Stuart A. Long,, IEEE Antennas and Wireless Propagation Letters, Vol. 9, pp. 1201-1204, December 2010.

71. "A Study of the Impedance and Pattern Bandwidths of Probe-Fed Cylindrical Dielectric Resonator Antennas", Adam P. Huynh, David R. Jackson, Stuart A. Long, and Donald R. Wilton, IEEE Antennas and Propagation Letters, Vol. 10, pp. 1313-1316, November, 2011.

72. "A Study of the Impedance and Pattern Bandwidths of Aperture-Coupled Cylindrical Dielectric Resonator Antennas", Adam P. Huynh, David R. Jackson, Stuart A. Long, and Donald R. Wilton, *Microwave and Optical Technology Letters*, Vol. 56, No. 9, pp. 2129-2132, September 2014.

73. "A Method for Analyzing a Linear Series-Fed Rectangular Microstrip Antenna Array", Sohini Sengupta, David R. Jackson, and Stuart A. Long, IEEE Transactions Antennas Propagation, Vol. 63, No. 8, pp. 3731-3736, August 2015.

74. "Modal Analysis and Propagation Characteristics of Leaky Waves on a 2-D Periodic Leaky-Wave Antenna", Sohini Sengupta; David R. Jackson; Stuart A. Long, IEEE Transactions on Microwave Theory and Techniques, Vol. 66, No.3, pp.1181-1191, March 2018. [10.1109/TMTT.2017.2783373]

"Effect of Ground Plane Size on Radiation Patterns of Reduced Surface Wave Antennas", (V.B. Davis, J.T. Williams, D.R. Jackson, S.A. Long, S. Jiang), submitted to IEEE Trans. Antennas Propagation.

"Characteristics of the Shorted-Annular Ring Reduced Surface Wave Antenna", V.B. Davis, M.A. Khayat, S. Jiang, D.R. Jackson, J.T. Williams, and S.A. Long, accepted for publication in IEEE Transactions Antennas Propagation.

"Analysis and Design of a Capacitively-Tuned Rectangular Microstrip Patch Antenna", L.I. Basilio, J.T. Williams, D.R. Jackson, and S.A., Long, accepted for publication in IEEE Transactions Antennas Propagation.

"Dual-Band Shorted-Annular-Ring Reduced-Surface-Wave Antennas", M.A. Khayat, L.I. Basilio, J.T. Williams, and S.A. Long), accepted for publication in IEEE Trans. Antennas Propagation.

"Using Small Holes To Achieve Dual-Band Behavior In Shorted-Annular-Ring Reduced-Surface-Wave Microstrip Antennas", L.I. Basilio, M.A. Khayat, J.T. Williams, and S.A. Long), accepted for publication in IEEE Trans. Antennas Propagation.

RESEARCH PRESENTATIONS

1. "The Impedance of a Cavity-Backed Slot Antenna," IEEE/G-AP-URSI International Symposium, University of Colorado, Boulder, Colorado August 1973.

2. "A Combination of Monopole and Slot Antennas for Isotropic Coverage," IEEE/AP-S International Symposium, Georgia Institute of Technology, Atlanta, Georgia, June 1974.

3. "An Experimental Investigation of the Circular Disc, Printed Circuit Antenna," (M.D. Walton, M.R. Allerding, L.C.

Shen and S.A. Long), IEEE Region V Conference, University of Texas, Austin, Texas, April 1976.

4. "A Theoretical Investigation of the Circular Disc Antenna," (P.B. Morel, S.A. Long and L.C. Shen), IEEE Region V Conference, University of Texas, Austin, Texas, April 1976.

5. "An Experimental and Theoretical Investigation of the Circular Disc Printed Circuit Antenna," (S.A. Long and L.C. Shen), U.S. Army Workshop on Electrically Small Antennas, Ft. Monmouth, New Jersey, May 1976.

6. "The Circular Disc, Printed Circuit Antenna," (S.A. Long and L.C. Shen), IEEE/AP-S International Symposium, Stanford University, Stanford, California, June 1977.

7. "A Dual Frequency, Stacked Circular Disc Antenna," (S.A. Long and M.D. Walton), IEEE/AP-S International Symposium, University of Maryland, College Park, Maryland, May 1978.

8. "Theoretical and Experimental Study of the Circular Printed-Circuit Antenna," (S.A. Long and L.C. Shen), 48th Interservice Antenna Group Meeting, Pacific Missile Test Center, Point Mugu, California, February 1979.

9. "Impedance of a Circular Coil with a Conductive Cylindrical Core," (S.A. Long, C.G. Gardner, A.J.M. Zaman and S. Toomsawasdi), Symposium on Nondestructive Evaluation, Southwest Research Institute, San Antonio, Texas, April 1979.

10. "Nondestructive Evaluation of Dielectric Layers on Conductive Substrates by Microwave Surface Electromagnetic Waves," (C.G. Gardner, S.A. Long and W. Ou), 12th Symposium on Nondestructive Evaluation, Southwest Research Institute, San Antonio, Texas, April 1979.

11. "Experimental Investigation of the Radiated Fields of a Buried Antenna," (F.Vaziri, S.A. Long and L.C. Shen), International IEEE/AP-S Symposium and National Radio Science Meeting, University of Washington, Seattle, Washington, June 1979.

12. "Impedance of a Loop with a Cylindrical Conducting Core," (S.A. Long, C.G. Gardner and A.J.M. Zaman), DARPA/AF Review of Progress in Quantitative NDE, Scripps Institution of Oceanography, La Jolla, California, July 1979.

13. "Theoretical Analysis of Printed-Circuit Antennas," (L.C. Shen and S.A. Long), (invited) Printed-Circuit Antenna Technology Workshop, Army Research Office and Physical Science Laboratory, Las Cruces, New Mexico, October 1979.

14. "The Circularly Polarized Elliptical Printed-Circuit Antenna," (S.A. Long and L.C. Shen), IEEE/AP-S International Symposium, Quebec, Canada, June 1980.

15. "Impedance of a Loop Near a Conducting Half Space," (S.A. Long, A.J.M. Zaman and C.G. Gardner), DARPA/AF Review of Progress in Quantitative NDE, Scripps Institution of Oceanography, La Jolla, California, July 1980.

16. "A Theoretical and Experimental Investigation of the Circular Polarized Elliptical Printed-Circuit Antenna," (S.A. Long and L.C. Shen), Second International Conference on Antennas and Propagation, University of York, England, April 1981.

17. "The Change in Impedance of a Single-Turn Coil Due to a Void in Conducting Half-Space," (A.J.M. Zaman, C.G. Gardner and S.A. Long), 13th Symposium on Nondestructive Evaluation, Southwest Research Institute, San Antonio, Texas, April 1981.

18. "The Impedance of a Elliptical Printed-Circuit Antenna," (S.A. Long and M.W. McAllister), IEEE AP-S International Symposium, Los Angeles, California, June 1981.

19. "Electromagnetic Surface Wave Investigation of a Dielectric Layer over a Conductive Substrate," (S.A. Long, W. Ou and C.G. Gardner), URSI/National Radio Science Meeting, Boulder, Colorado, January 1982.

20. "An Experimental and Theoretical Investigation of the Resonant Cylindrical Cavity Antenna," (S.A. Long and M.W. McAllister), IEEE AP-S International Symposium, Albuquerque, New Mexico, May 1982.

21. "The Change in Impedance of a Single-Turn Coil Due to a Flaw in a Conducting Cylinder," (A.J.M. Zaman, S.A. Long, C.G. Gardner and W.F. Richards), DARPA/AF Review of Progress in Quantitative NDE, University of California at San Diego, La Jolla, California, August 1982.

22. "The Resonant Rectangular Dielectric Cavity Antenna," (M.W. McAllister, S.A. Long, and G.L. Conway), National Radio Science Meeting, University of Colorado, Boulder, Colorado, January 1983.

23. "An Experimental Investigation of the Change in Impedance of a Multi-Turn Eddy Current Coil Due to a Conducting Half Space," (S.A. Long and S. Toomsawasdi), 14th Symposium on Nondestructive Evaluation, Southwest Research Institute, San Antonio, Texas, April 1983.

24. "The Resonant Dielectric Cavity Antenna," (M.W. McAllister and S.A. Long), IEEE Region 5 Conference, University of Houston, Houston, Texas, April 1983.

25. "An Experimental Investigation of the Change in Impedance of a Multi-Turn Eddy Current Coil Due to a Conducting Half Space," (S.A. Long and S. Toomsawasdi), IEEE Region 5 Conference, University of Houston, Houston, Texas, April 1983.

26. "External Fields of Dielectric Resonators," (M.W. McAllister, S.A. Long, and L.C. Shen), IEEE International AP-S Symposium, University of Houston, Houston, Texas, May 1983.

27. "The Rectangular Dielectric Resonator Antenna," (M.W. McAllister, S.A. Long, and G.L. Conway), International AP-S Symposium, University of Houston, Houston, Texas, May 1983.

28. "Experimental Measurement of the Eddy Current Signal Due to a Flawed, Conducting Half Space," (S.A. Long, S. Toomsawasdi and A.J.M. Zaman), DARPA/AF Review of Progress in Quantitative NDE, University of California - Santa Cruz, August 1983.

29. "The Resonant Cylindrical Dielectric Antenna," (S.A. Long, M.W. McAllister, and L.C. Shen), URSI International Symposium on Electromagnetic Theory, Santiago de Compostela, Spain, August 1983.

30. "An Experimental Investigation of Loaded Microstrip Antennas," (W.F. Richards and S.A. Long), IEEE International AP-S Symposium, Boston, Massachusetts, June 1984.

31. "Analysis of Eddy Current Response Due to Flaws in Imperfectly Conducting Materials," (A.J.M. Zaman and S.A. Long), DARPA/AF Review of Progress in Quantitative NDE, University of California at San Diego, La Jolla, California, July 1984.

32. "Dielectric Resonator Antennas," U.S. Army Research Office Workshop on Millimeter Wave Technology, New York Institute of Technology, Old Westbury, New York, December 1984.

33. "Monolithic Design of Dual-Band Microstrip Antennas Using Reactive Loading," (S.E. Davidson, S.A. Long, and W.F. Richards), IEEE International AP-S Symposium, Vancouver, British Columbia, June 1985.

34. "Pattern Adaptation Using Loaded Dual-Mode Microstrip Antennas," (W.F. Richards and S.A. Long), IEEE International AP-S Symposium, Vancouver, British Columbia, June 1985.

35. "Applications of Loaded Microstrip Antennas," (W.F. Richards and S.A. Long), International Symposium on Antennas and EM Theory, Beijing, China, August 1985.

36. "The Dielectric Resonator Antenna," (M.W. McAllister and S.A. Long), Tenth International Conference on Infrared and Millimeter Waves, Lake Buena Vista, Florida, December 1985.

37. "An Investigation of a Monopole Antenna Attached to a Conducting Box," (S. Bhattacharya, S.A. Long, and D.R. Wilton), National Radio Science Meeting, Boulder, Colorado, January 1986.

38. "Impedance Matching of Microstrip Antennas with Reactive Loads," (W.F. Richards and S.A. Long), National Radio Science Meeting, Boulder, Colorado, January 1986.

39. "The Resonant Frequency of Electrically Thick Rectangular Microstrip Antennas," (E. Chang, S.A. Long, and W.F. Richards), IEEE International AP-S Symposium, Philadelphia, Pennsylvania, June 1986.

40. "A Moment-Method Approach for an Array of Transmission Line Coupled Dipoles," (D.R. Jackson and S.A. Long), IEEE International AP-S Symposium, Philadelphia, Pennsylvania, June 1986.

41. "Matching Microstrip Antennas Using Reactive Loads," (W.F. Richards and S.A. Long), IEEE International AP-S Symposium, Philadelphia, Pennsylvania, June 1986.

42. "Impedance Control of Microstrip Antennas Utilizing Reactive Loading," (W.F. Richards and S.A. Long), International Telemetering Conference, Las Vegas, Nevada, October 1986.

43. "Adaptive Pattern Control of a Reactively Loaded, Dual-Mode Microstrip Antenna," (W.F. Richards and S.A. Long), International Telemetering Conference, Las Vegas, Nevada, October 1986.

44. "Radiation Patterns of a Monopole Antenna Mounted on a Cubical Conducting Box," (S.A. Long and A.W.C. Chu), IEEE International AP-S Symposium, Blacksburg, Virginia, June 1987.

45. "An Investigation of the Impedance of Reactively Loaded Microstrip Antennas," (S.A. Long and A. Ali-Khan), National Radio Science Meeting, Boulder, Colorado, January 1988.

46. "The Use of Reactive Loading for Dual-Band Circularly Polarized Characteristics in Microstrip Antennas," (S.E. Slawson and S.A. Long), IEEE International AP-S Symposium, Syracuse, New York, June 1988.

47. "High Frequency Characterization and Application of High Tc Superconductors," (J.T. Williams, S.A. Long, D.R. Jackson, and D.R. Wilton), National Radio Science Meeting, Boulder, Colorado, January 1989.

48. "Planar Transmission Line Excitation of Dielectric Resonator Antennas," (R.A. Kranenburg, S.A. Long, and J.T. Williams), National Radio Science Meeting, Boulder, Colorado, January 1989.

49. "Antenna Pattern Measurement Techniques for Infinite Ground Plane Simulation," (H.J. Delgado, J.T. Williams, and S.A. Long), IEEE International AP-S Symposium, San Jose, California, June 1989.

50. "High Frequency Characterization of High Temperature Superconductors," (J.T. Williams, S.A. Long, J.C. Wolfe, D.R. Jackson, and D.R. Wilton), IEEE International AP-S Symposium, San Jose, California, June 1989.

51. "Microwave and Millimeter Wave Characterization of High Temperature Superconducting Thin Films," (A.D. MacDonald, S.A. Long, J.T. Williams, and D.R. Jackson), IEEE International Symposium, Dallas, Texas, May 1990.

52. "An Antenna Pattern Measurement Technique for Eliminating the Fields Scattered from a Finite Ground Plane," (J.T. Williams, H.J. Delgado, and S.A. Long), ANTEM, Winnipeg, Manitoba, Canada, August 1990.

53. "Microwave and Millimeter Wave Characterization of High Temperature Superconductors," (S.A. Long, J.T. Williams, J.C. Wolfe, and J. Wosik), URSI General Assembly, Prague, Czechoslovakia, August 1990.

54. "Elimination of Finite Ground Plane Effects in Antenna Pattern Measurements," (J.T. Williams, H.J. Delgado, and S.A. Long), Antenna Measurements Techniques Association Symposium, Philadelphia, Pennsylvania, October 1990.

55. "Superconducting Microstrip Patch Antennas," (with R.L. Smith, T.E. Harrington, J.T. Williams), IEEE AP-S International Symposium, London, Ontario, Canada, June 1991.

56. "Survey of Beaming Properties of an Extremely Large, Segmented Phased Array on the Limb of the Moon," (with S. Jiang and D.R. Criswell), American Institute of Aeronautics and Astronautics Technical Symposium, Clear Lake, Texas, May 1992.

57. "Lunar Power Systems," (with D.R. Criswell and S. Jiang), Wireless Power Transmission Conference, San Antonio, Texas, February 1993.

58. "Reduced Surface Wave Microstrip Antennas: Theory and Experiments," (D.R.Jackson, J.T. Williams, A.K. Bhattacharyya, R.L. Smith, S.J. Buchheit, S.A. Long, and S. Jiang), PIERS Symposium, Pasadena, California, July 1993.

59. "Microstrip Antennas: Overview of Analysis, Properties, and New Effects," (D.R. Jackson, J.T. Williams, and S.A. Long), 3rd International Conference on Electromagnetics in Aerospace Applications and 7th European Electromagnetic Structures Conference, Torino, Italy, September 1993.

60. "Characteristics of the Shorted Annular-Ring Patch Antenna," (S. Jiang, D.R. Jackson, S.A. Long, J.T. Williams, and V.B. Davis), IEEE AP-S International Symposium, Seattle, Washington, June 1994.

61. "Circularly Polarized YBaCuO Microstrip Antenna Array", (J.D. Morrow, J.T.Williams, M.F. Davis, D.L. Licon, S.A. Long and J.C. Wolfe), URSI national Radio Science Meeting, Boulder, CO, January 1995.

62. "A Circularly Polarized HTS Microstrip Antenna Array," (J.D. Morrow, J.T.Williams, M.F. Davis, D.L. Licon, S.A. Long and J.C. Wolfe), IEEE AP-S International Symposium, Newport Beach, California, June 1995.

63. "Surface-Wave Excitation from the Shorted Annular-Ring Microstrip Antenna," (S. Jiang, D.R. Jackson, S.A. Long, and J.T. Williams), PIERS Symposium, Seattle, Washington, July 1995.

64. "Investigation of the Microwave Power-Handling Capabilities of High-Tc Superconducting Thin Films", (J.Wosik, L-M. Xie, D. Li, P. Gierlowski, J. H. Miller, Jr., and S. A. Long),The 10th Anniversary HTS Workshop on Physics, Materials, and Applications, Houston, Texas, March 1996.

65. "Investigation of the Microwave Power Handling Capability of High-Tc Superconducting Thin Films", (J. Wosik, D. Li, L-M. Xie, J. H. Miller, Jr., and S. A. Long), Materials Research Society Spring Meeting, San Francisco, CA, April 1996.

66. "A Dual Band Reduced Surface Wave Antenna", (V.B. Davis, J.T. Williams, D.R. Jackson, and S.A.Long), URSI National Radio Science Meeting, Baltimore, Maryland, July 1996.

67. "Thermally-Induced Nonlinearities in the Surface Impedance of Superconducting YBCO Thin Films", (J. Wosik, L.M. Xie, J.H. Miller, Jr., S.A. Long, and K. Nesteruk), Applied Superconductivity Conference, Pittsburgh, PA, August 1996.

68. "The Field Pattern of the Confocal Resonator for Characterization of Anisotropic Dielectrics and HTS Thin Films", (T.E. Harrington, J. Wosik, and S.A. Long), Applied Superconductivity Conference, Pittsburgh, PA, August 1996.

69. "Superconducting Niobium Confocal Resonator for High Sensitivity and Anisotropic Zs Measurements of HTS Thin Films", (J. Wosik, T. Harrington, P. Kneisel, J.H. Miller, Jr., and S.A. Long) Applied Superconductivity Conference, Pittsburgh, PA, August 1996.

70. "Applications of High Temperature Superconductors in Antenna Systems", (S.A. Long), International Symposium on Antennas and Propagation, Chiba, Japan, September 1996.

71. “Design and Characterization of Gap-Coupled HTS Microstrip Patch Antennas”, (J.D. Morrow, J.T. Williams, S.A. Long, and J.C. Wolfe, IEEE Antennas and Propagation International Symposium, Montreal, Canada, July 1997

72. "Dual-Band Reduced Surface Wave Antennas", (V. Davis, J.T. Williams, D.R. Jackson, and S.A. Long), International Conference on Electromagnetics in Advanced Applications (ICEEA), Torino, Italy, September 1997.

73. "The Influence of Defects on Microwave Properties of Superconducting Thin Films," (J. Wosik, .L. Xie, D. McFall, J. H. Miller, Jr., S. A. Long, J. Mazierska, M. Konczykowski), MRS Fall Meeting, Boston, 1-5 December 1997.

74. D. R. Jackson, A. Mehrotra, J. T. Williams, and S. A. Long, "A General method for Constructing Reduced Surface Wave Microstrip Antennas, "IEEE AP-S/URSI Intl. Symp., Atlanta, GA, June 1998 (URSI Abstracts, p. 6).

75. L. I. Basilio, J. T. Williams, D. R. Jackson, and S. A. Long, "Frequency-Tunable Microstrip Patch Antennas Using Ferroelectric-Loaded Gaps," IEEE AP-S/URSI Intl. Symp., Atlanta, GA, June 1998 (URSI Abstracts, p. 9).

76. "Microwave Properties of NSMO Thin Films for Tunable Superconducting Filters, " J. Wosik, L.-M, Xie, M. Strikovski, S. A. Long, and P. Przyslupski, Fifth Symposium on High-Temperature Superconductors in High-Frequency Fields," June 22-26, 1998 Stockholm, Sweden.

77. “Recent Advances in Reduced Surface Wave Printed Antennas”, (D.R. Jackson, J.T. Williams, S.A. Long, and V. Davis), Elettromagnetismo Applicato e Scienze Elettrofisiche, Universita La Sapienza di Roma, August 1998.

78. “Microwave Power Handling Capability of HTS Superconducting Thin Films: Weak Links and Thermal Effects Induced Limitation”, (J. Wosik, L.M. Xie, R. Grabovickic. T. Hogan, and S.A. Long), 1998 Applied Superconductivity Conference, Palm Desert, CA, Sept. 1998.

79. "Recent Developments in the Characterization of Reduced Surface Wave Microstrip Antennas," (M. A. Khayat, J. T. Williams, D. R. Jackson, and S. A. Long), URSI National Radio Science Meeting, Boulder, CO, Jan. 1999

80. “An Annular-Ring Reduced Surface Wave Microstrip Antenna”, (A. Mehrotra, J.T. Williams, D.R. Jackson, and S.A. Long), Proceedings of the IEEE AP-S International Symposium, Orlando, FL, July 1999.

81. “Mutual Coupling Between Shorted Annular Ring Reduced Surface Wave Antennas”, (M. Khayat, J.T. Williams, D.R. Jackson, and S.A. Long), Proceedings of the IEEE AP-S International Symposium, Orlando, FL, July 1999.

82. “The Measured Input Impedance of an Inset Microstrip Line Fed Patch Antenna”, (L. Basilio, M. Khayat, J.T. Williams, and S.A. Long), URSI National Radio Science Meeting, Orlando, FL, July 1999.

83. “Reduction of the Excitation of Surface and Lateral Waves by Microstrip Patch Antennas”, (J.T. Williams, D.R. Jackson, and S.A. Long), Proceedings of the IEEE AP-S International Symposium, Orlando, FL, July 1999.

84. "Analysis of the Coupling Between Reduced Surface-Wave Microstrip Antennas," (M. A Khayat, J. T. Williams, D. R. Jackson, and S. A. Long), Intl. Conf. on Electromagnetics in Advanced Applications (ICEEA), Torino, Italy, Sept. 1999.

85. “Magnetic tuning of superconducting resonators using ferromagnetic perovskites”, J. Wosik, M. Strikovski, L.-M. Xie, V. V. Srinivasu, J. H. Miller Jr., and S. A. Long, 4th Joint ISTEC/MRS International Workshop on High-Temperature Superconducting Materials and Devices for Electronics Applications, Kawai, Hawaii, June, 1999.

86. “Optimization of microwave losses of ferromagnetic perovskite Nd0.67Sr0.33MnO3-y thin films for magnetically tunable microwave superconducting filters”, J Wosik, M. Strikovski, L.-M. Xie, V. V. Srinivasu, P. Przyslupski, and S. A. Long, European Conference on Applied Superconductivity (EUCAS), Barcelona, Spain, September, 1999.

87. “Characterization of ferromagnetic perovskites for magnetically tunable microwave superconducting resonators”, J. Wosik, M. Strikovski, L.-M. Xie, P. Przyslupski, M. Kamel, and S. A. Long, Materials Research Society Fall Meeting, Boston, Nov, 1999.

88. “Using Small Holes to Achieve Dual-Band Reduced-Surface-Wave Antennas”, (V.B. Davis, J.T. Williams, D.R. Jackson, and S.A. Long, URSI National Radio Science Meeting, Salt Lake City, UT, p. 311, July 2000.

89. “Electronically Tunable Rectangular Microstrip Antennas”, L.I. Basilio, J.T. Williams, D.R. Jackson, and S.A. Long, URSI National Radio Science Meeting, Salt Lake City, UT, p. 316, July 2000.

90. “Microwave Power-Induced Switching of Weak Link Josephson Junctions in YBCO Thin Films”, (L.M. Xie, J. Wosik, R. Grabovickic, T. Hogan, and S.A. Long, Sixth Symposium on HTS Materials in High Frequency Fields, Capri, Italy, May 2000.

91. “Sixty Years at Harvard: The Career of Professor R.W.P. King”, Proceedings of the IEEE AP-S International Symposium, Boston, MA, July 2001.

92. “Mutual Coupling Between Reduced Surface Wave Antennas in an Array”, R. L. Chen, D. R. Jackson, J. T. Williams, and S. A. Long, Proceedings of the IEEE AP-S International Symposium, Boston, MA, July 2001.

93. “Effects of Magnetic Material Coating and Choke Loading on the Impedance and Radiation Pattern of a Monopole Antenna”, T. F. Kennedy, S. A. Long, J. T. Williams, URSI National Radio Science Meeting Digest, San Antonio, TX, June 2002.

94. “An Investigation of Low-Profile, Conformable, Dielectric Resonator Antennas”, B. J. Fasenfest, T F. Kennedy, C. S. Deyoung, A. G. Walsh, S. A. Long, and J. T. Williams, URSI National Radio Science Meeting Digest, San Antonio, TX, June 2002.

95. “A Hybrid Cavity/MoM Analysis for a Finite Array of Microstrip Antennas”, R.L. Chen, D.R. Jackson, J. T. Williams, and S. A. Long, URSI National Radio Science Meeting Digest, San Antonio, TX, June 2002.

96. “Microstrip Antennas With Reduced Surface-Wave And Lateral-Wave Excitation”, D. R. Jackson, J. T. Williams, and S. A. Long, ANTEM 2002 Digest, Montreal, Canada, July 2002.

97. “ Modification and Control of Currents on an Electrically Long Monopole Using Magnetic Bead Loading”, T.F. Kennedy and S.A. Long, Proceedings of the IEEE AP-S International Symposium, Columbus, OH, pp. 844-847, June 2003.

98. “Radiation Pattern of an Electrically Long, Sleeve Choke-Loaded Monopole Using Magnetic and Dielectric Beads”, T. F. Kennedy, S. A. Long, J. T. Williams, Proceedings of the IEEE Topical Conference on Wireless Communication Technology, Honolulu, HI, October, 2003.

99. “Summer Camp and Course Workshops for Sophomore Level Electrical and Computer Engineers”, Shattuck, D.P., Claydon, F.J., Long, S.A., Barr, B.J., Ruchhoeft, J.L., and Basilio, L.I., Proceedings of the 2003 American Society for Engineering Education Annual Conference and Exposition, Session Number 1432, 2003.

100. “Dielectric Bead Loading for Control of Currents on Electrically Long Dipole Antennas,” T. F. Kennedy, S. A. Long, J. T. Williams, Proceedings of the IEEE AP-S International Symposium, Monterey, CA. , pp. 4420-4423, June 2004.

101. “Making the GRADE (Girls Reaching and Demonstrating Excellence) at the University of Houston”, John Glover, Jenny L. Ruchhoeft , Julie Martin Trenor, Stuart A. Long, and Frank J. Claydon, presentation at Society of Women Engineers National Conference and Exposition, Milwaukee, Wisconsin, October 2004.

102. “Girls Reaching and Demonstrating Excellence (GRADE) Camps: An Innovative Recruiting Strategy at the University of Houston to Increase Female Representation in Engineering”, John R. Glover, Jennifer L. Ruchhoeft, Julie

Martin Trenor, Stuart A. Long, and Frank J. Claydon, Proceedings of the 2005 American Society for Engineering Education Annual Conference and Exhibition, p. 129, Portland, Oregon, June 15, 2005.

103. "Collaborative Learning as a Tool for Retention of Engineering Students: An Update on the Success of Engineering 'Redshirt' Camps and Collaborative Learning Workshops at the University of Houston Cullen College of Engineering", David P. Shattuck, Betty J. Barr, Jennifer L. Ruchhoeft, Julie Martin Trenor, Stuart A. Long, and Frank J. Claydon, Proceedings of the 2005 American Society for Engineering Education Annual Conference and Exhibition, p. 125, Portland, Oregon, June 15, 2005.

104. "Investigation of Dual Mode Wideband Rectangular and Cylindrical Dielectric Resonator Antennas," C.S. De Young and S.A. Long, Proceedings of the IEEE AP-S International Symposium, Washington, DC, Vol. 4, p. 258, July 2005.

105. "Characteristic Modes for Planar Structure Feed Design," K.D. Akkerman, T.F Kennedy, S.A. Long, and J.T. Williams, Proceedings of the IEEE AP-S International Symposium, Washington, DC, Vol. 2, p. 163, July 2005.

106. "A Study of the Input Impedance of the Inset-Fed Rectangular Microstrip Antenna as a Function of Notch Depth and Width," Y. Hu, E.J. Lundgren, D.R. Jackson, J.T. Williams, and S.A. Long, Proceedings of the IEEE AP-S International Symposium, Washington, DC, Vol. 4, p. 239, July 2005.

107. "Modification and Control of the Radiation Properties of Electrically Large Conducting Structures Using Dielectric Loads," T. F. Kennedy, K.D. Akkerman, S. A. Long, J. T. Williams, Proceedings of the IEEE AP-S International Symposium, Washington, DC, Vol. 1, p. 102, July 2005.

108. "Collaborative Learning as a Tool for Retention of Engineering Students", David P. Shattuck, Betty J. Barr, Jennifer L. Ruchhoeft, Julie Martin Trenor, Stuart A. Long, and Frank J. Claydon, Proceedings of the Texas Engineering Technical Consortium, Austin, TX, March 2006

109. "Girls Reaching and Demonstrating Excellence (GRADE) Camps: An Innovative Recruiting Strategy at the University of Houston to Increase Female Representation in Engineering", John R. Glover, Jennifer L. Ruchhoeft, Julie Martin Trenor, Stuart A. Long and Frank J. Claydon, Proceedings of the Texas Engineering Technical Consortium, Austin, TX, March 2006.

110. "Improving K-12 Teaching Through the Research Experiences for Teacher Program at the University of Houston", Julie Martin Trenor, Jenny Ruchhoeft, Stuart Long, and Frank Claydon, Proceedings of the 2006 American Society of Engineering Education Annual Conference and Exhibition, Chicago, Illinois, June 2006.

111. "A Design Approach for Inset-Fed Rectangular Microstrip Antennas", Y. Hu, D. R. Jackson, J. T. Williams, S. A. Long, Proceedings of the IEEE AP-S International Symposium, Albuquerque, NM, pp. 1491-1494, July 2006.

112. "Retaining Female Engineering Students by Creating an Effective Women-in-Engineering Program", J.M. Trenor, F.J. Claydon, S.A. Long, and R.D. Jones, Texas Engineering and Technical Consortium Best Practices Conference, Austin, TX, March 2007.

113. "Prof. R.W.P. King's Life and Legacy", D.V. Giri and S.A. Long, URSI National Radio Science Meeting Digest, Ottawa, Canada, July 2007.

114. "The History of the Development of the Dielectric Resonator Antenna", Stuart A. Long and Ellen M. O'Connor, Proceedings of the ICEAA, Torino, Italy, Sept 2007.

115. "STEP Forward: Preparing Low-Income High School Students for Academic Success in ECE at UH", K.S. Zerda, F. J. Claydon, S.A. Long, and J. M. Matthews, Texas Engineering and Technical Consortium Best Practices Conference, Austin, TX, March 2007.

116. "Retention Tools for Engineering Students", F.C. Claydon, D. Bernatek, K.S. Zerda, and S. A. Long, Texas Engineering and Technical Consortium Best Practices Conference, Austin, TX, March 2007.

117. "The Impact of the Technical Leadership, Outstanding Teaching, and Active Mentoring of Professor Donald G. Dudley Jr.", K. Melde and S.A. Long, Proceedings of the IEEE AP-S International Symposium, San Diego, CA, July 2008.

118. "Reduced Lateral Wave Cylindrical Dielectric Resonator Antenna", Adam P. Huynh, David R. Jackson, and Stuart A. Long, Proceedings of the IEEE AP-S International Symposium, Charleston, SC, June 2009.

119. "Producing Endfire Omnidirectional Radiation Patterns from Leaky-Wave Antennas", Ellen M. O'Connor, Minh Tran, David R. Jackson , and Stuart A. Long, National Radio Science Meeting, Boulder, CO, January 2010.

120. "Radiation Characteristics of Finite-Length 1D-Uniform Leaky Wave Antennas Radiating at Broadside", Varadarajan Komanduri, David R. Jackson, and Stuart A. Long, IEEE AP-S International Symposium, Toronto, CA, July 2010.

121. "The Development of a Modified Hansen-Woodyard Condition to Include Attenuation for Leaky-Wave Endfire Antennas", Ellen M. O'Connor, David R. Jackson, and Stuart A. Long, IEEE AP-S International Symposium, Toronto, CA, July 2010.

122. "Effects of Permittivity on Bandwidth and Radiation Patterns of Cylindrical Dielectric Resonator Antennas, Adam P. Huynh, Stuart A. Long, and David R. Jackson, IEEE AP-S International Symposium, Toronto, CA, July 2010.

123. "Broadband Probe-Fed and Aperture-Coupled Cylindrical Dielectric Resonator Antennas", Adam P. Huynh, David R. Jackson, Stuart A. Long, and Donald R. Wilton, National Radio Science Meeting, Boulder, CO, January 2012.

124. "Analysis of a Linear Series-Fed Array of Rectangular Microstrip Antennas", Sohini Sengupta, David R. Jackson, and Stuart A. Long, IEEE AP-S International Symposium, Chicago, IL, July 2012.

125. "Cylindrical Dielectric Resonator Antenna Designs That Have Reduced Lateral Radiation", Adam P. Huynh, Stuart A. Long, David R. Jackson, and Donald R. Wilton, IEEE AP-S International Symposium, Chicago, IL, July 2012.

126. "Multicultural Engineering Recruitment and Retention at a Large Urban University", Katherine S. Zerda, Stuart A. Long, Fritz J. Claydon, 2012 ASEE Annual Conference, San Antonio, TX.

127. "Improving Student Engagement and Outcomes in First-Year Engineering Courses at a Highly Diverse, Multicultural Urban University", Katherine S. Zerda, Diana de la Rosa-Pohl, Stuart A. Long, Fritz J. Claydon, University of Houston, 2012 ASEE Annual Conference, San Antonio, TX.

128. "Introduction of a digital logic project in a first-year honors engineering course" , de la Rosa-Pohl, D. G., Goodwin, C., Long, S., 2013 ASEE Annual Conference. Atlanta, GA

129. "An Investigation of Multiband Fabry-Perot Resonant Cavity Antennas", Krishna Kota, Stuart A. Long, David R. Jackson, IEEE AP-S International Symposium, Memphis, TN, July 2014

130. "Examination of Radiation from 2D Periodic Leaky-Wave Antennas", Sohini Sengupta, Stuart A. Long, David R. Jackson, IEEE AP-S International Symposium, Memphis, TN, July 2014

131. "A Cylindrical Dielectric Surface-Wave Antenna", Nicholas Boggs, Stuart A. Long, David R. Jackson, IEEE AP-S International Symposium, Memphis, TN, pp. 1972-1973, July 2014

132. "A Brief History of the International Symposium on Antennas and Propagation", Stuart A. Long, IEEE AP-S International Symposium, Memphis, TN, pp. 522-523, July 2014

133. “Properties Of Microwave and Optical 2-D Periodic Leaky Wave Antennas”, Sohini Sengupta; David R.; Jackson, Stuart A Long, 2015 Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS), pp. 1-4, April 2015

134. “An investigation of dual-band Fabry-Pérot resonant cavity antennas”, Krishna Kota, David R Jackson, Stuart A. Long, 2015 Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS), pp. 1-4, April 2015

135. “Dual-Band and Tri-Band Fabry-Perot Resonant Cavity Antennas Using Multiple FSS Layers”, Krishna Kota, David R. Jackson , Stuart A. Long, , IEEE AP-S International Symposium and URSI-USNC Radio Science Meeting, Vancouver, BC, Canada, pp., July 2015

136. “Properties of 2D Periodic Leaky Wave Antennas at Microwave and Optical Frequencies”, Sohini Sengupta, David R. Jackson, Stuart A. Long, IEEE AP-S International Symposium and URSI-USNC Radio Science Meeting, Vancouver, BC, Canada, pp., July 2015

137. “The Early History of the Dielectric Resonator Antenna”, Stuart A. Long, Ellen M. O'Connor, IEEE AP-S International Symposium and URSI-USNC Radio Science Meeting, Fajardo, Puerto Rico, pp., July 2016

138. “Dual-Band Fabry-Perot Resonant Cavity Antenna with Practical Frequency Selective Surface and Partially Reflective Surface Layers”, Krishna Kota, David R. Jackson, Stuart A. Long, IEEE AP-S International Symposium and URSI-USNC Radio Science Meeting, Fajardo, Puerto Rico, pp., July 2016

139. “Radiation Properties and Modal Analysis of 2-D Periodic Leaky-Wave Antennas at Microwave and Optical Frequencies”, Sohini Sengupta, David R. Jackson, Stuart A. Long, IEEE AP-S International Symposium and URSI-USNC Radio Science Meeting, Fajardo, Puerto Rico, pp., July 2016

140. “Propagation Characteristics of Leaky Waves on a 2D Periodic Leaky-Wave Antenna”, Sohini Sengupta, David R. Jackson, and Stuart A. Long, IEEE International Microwave Symposium, Honolulu, HA, pp. June 2017.

140. “A Historical Perspective on the IEEE Antennas and Propagation Society Awards for Individual Achievement and Outstanding Papers”, Stuart A. Long, IEEE AP-S International Symposium and URSI-USNC Radio Science Meeting, San Diego, CA, pp., July 2017.

141. “Professor R.W.P. King: A Tribute to his Life and Technical Accomplishments”, Stuart A. Long, Glenn S. Smith, D.V. Giri, Ted Simpson, and Robert J. Mailloux, IEEE AP-S International Symposium and URSI-USNC Radio Science Meeting, San Diego, CA, pp., July 2017.

142. “Microstrip Feeding for the Excitation of a Higher-Order Resonant Mode in Cylindrical Dielectric Resonator Antennas”, Murilo H. Seko, Fatima S. Correra, Stuart A. Long, and David R. Jackson, International Microwave and Optoelectronics Conference, Águas de Lindoia, Brazil, August 2017.

INVITED SEMINARS

1. "Printed Circuit Antennas," Electrical Engineering Colloquium, Rice University, Houston, Texas, November 1976.

2. "Experimental and Theoretical Studies of Printed-Circuit Antennas," Electrical Engineering Department Seminar, University of Mississippi, April 1980.

3. "The Microstrip Antenna - Its Past History, Its Present Status, and Its Future Possibilities," Antennas and Propagation Society Distinguished Lecturer, Dallas, Texas, April 1983.

4. "Electromagnetic Education," invited panel member at NSF workshop, Arlington, Texas, January 1986.

5. "The Cylindrical Dielectric Resonator Antenna," invited participant at the U.S. Army Research Office Workshop on Fundamental Issues in Millimeter and Submillimeter Waves, Los Angeles, California, September 1986.

6. "An Investigation of the Use of Reactive Loading to Control the Impedance of Microstrip Antennas," Missile/Projectile/Airborne Test Instrumentation Antennas Workshop, Atlanta, Georgia, October 1987.

7. "Applications of High Temperature Superconductors in Antenna Systems," IEEE Antennas and Propagation Society Distinguished Lecturer, Ft. Worth, Newark, Tampa, Orlando, San Jose, Dallas, Amherst, Boston, Chicago, Los Angeles, 1992; Albuquerque, Houston, Denver, San Diego, 1993; Atlanta, Tucson, 1994.

8. "Applications of High Temperature Superconductors in Antenna Applications", ANTEM-94, Ottawa, Canada, August 1994.

9. "An Overview of the College of Engineering at the University of Houston", Chiba University, Chiba, Japan, October 1996.

10. “Understanding and Controlling Surface-Wave, Lateral-Wave, and Leaky-Mode Excitation from Printed-Circuit Lines and Antennas", IEEE AP-S Chapter, Dallas, TX, Sept. 9, 1999. Co-authors: D.R. Jackson, J. T. Williams, and M. A. Khayat.

FUNDED RESEARCH

1. "Aperture Antennas in Non-Planar Surfaces," UH-Research Initiation Grant, 1975, $4,000.

2. "Low Profile, Printed Circuit Antennas," (with L.C. Shen), U.S. Army Research Office, 1975-77, $47,000.

3. "Underground Antennas for Radio Communications," (with L.C. Shen), National Science Foundation, 1977-79, $60,300.

4. "Electromagnetic Methods of Nondestructive Evaluation," (with C.G. Gardner), Air Force Office of Scientific Research, 1977-78, $37,015.

5. "A Class of Low-Profile Antennas," (with L.C. Shen), U.S. Army Research Office, 1978-80, $61,625.

6. "An Interdisciplinary Study of Advanced NDI Techniques," (with C.G. Gardner), Air Force Office of Scientific Research, 1978-79, $52,165.

7. "Electromagnetic Methods of Nondestructive Evaluation," (with C.G. Gardner), Air Force Office of Scientific Research, 1979-81, $66,165.

8. "Millimeter Wave Guides and Antennas," Battelle Columbus Laboratories, 1981, $13,964.

9. "Nondestructive Evaluation of Energy Related Structures," (with K. Salama and B.D. Cook), Energy Laboratory, University of Houston, 1981-82, $11,791.

10. "Millimeter Wave Guiding Structures and Antennas," U.S. Army Research Office, 1982-83, $19,907.

11. "Nondestructive Evaluation of Energy Related Structures," (with K. Salama and B.D. Cook), Energy Laboratory, University of Houston, 1982-83, $17,147.

12. "Opto-Acoustic Imaging," (with D.P. Shattuck), NSF, 1983-84, $59,971.

13. "Development of a Numerical Procedure to Treat Wires Attached to Arbitrarily Shaped Conducting Bodies," (with D.R. Wilton), Army Research Office, 1983-85, $104,118.

14. "Nondestructive Evaluation of Energy Related Structures," (with K. Salama), Energy Laboratory, University of Houston, 1983-84, $12,000.

15. "Millimeter Wave Antennas," (with W.F. Richards), Army Research Office, 1984-88, $209,522.

16. "Applied Electromagnetics and Antennas," (with D.R. Wilton and W.F. Richards), Texas Instruments, Inc., 1984-85, $30,000.

17. "Dielectric Scattering," (with D.R. Wilton), RM Associates, 1984-85, $5,000.

18. "Integrated, Printed-Circuit Antennas," (with D.R. Wilton and W.F. Richards), Texas Advanced Technology Research Program, 1985-87, $385,000.

19. "Applied Electromagnetics and Antennas," (with D.R. Wilton and W.F. Richards), Texas Instruments, Inc., 1985-86, $80,000.

20. "Applied Electromagnetics and Antennas," (with D.R. Wilton and W.F. Richards), Texas Instruments, Inc., 1986-87, $60,000.

21. "Conformable Antennas for the Astronaut Backpack Communication System," (with D.R. Wilton), NASA-Johnson Space Center, 1987-88, $59,733.

22. "Field Penetration in a Slot-Coupled Cylindrical Cavity," (with D.R. Wilton), Sandia National Laboratories, 1987-88, $41,000.

23. "Communication Antenna Models," (with D.R. Wilton), Naval Oceans Systems Center, 1987-88, $40,000.

24. "Applied Electromagnetics and Antennas," (with D.R. Wilton), Texas Instruments, Inc., 1987-88, $60,000.

25. "Applications of High Temperature Superconductors to Microwave and Millimeter Wave Devices, Transmission Lines, and Waveguides," (with J.C. Wolfe and J.T. Williams), NASA-Johnson Space Center, 1988-89, $60,000.

26. "Coordinated Research and Development Activities Utilizing Recently Discovered High Temperature Superconducting (HTS) Materials," (with J.C. Wolfe and J.T.Williams), Defense Advanced Research Projects Agency, 1988, $357,753 (portion of $4,000,000 DARPA contract to the Texas Center for Superconductivity).

27. "Symmetry Options for the EFIE Code," (with D.R. Wilton), Naval Ocean Systems Center, 1988-89, $28,500.

28. "Near Fields for the EFIE Code," (with D.R. Wilton), Naval Ocean Systems Center, 1988-89, $34,500.

29. "Applied Electromagnetics and Antennas," (with D.R. Wilton and J.T. Williams), Texas Instruments, Inc., 1988-89, $60,000.

30. "Applications of High Temperature Superconductors," (with J.C. Wolfe and J.T. Williams), Defense Advanced Research Projects Agency, 1989, $350,000, contract through the Texas Center for Superconductivity.

31. "Optimization of High Tc Superconducting Materials for Applications to Microwave and Millimeter Wave Devices," (with J.C. Wolfe and J.T. Williams), NASA-Johnson Space Center, 1989-90, $60,000.

32. "Applied Electromagnetics and Antennas," (with D.R. Wilton and J.T. Williams), Texas Instruments, Inc., 1989-90,

$60,000.

33. "Development of High Tc Superconducting Receiving Antennas for Space Applications," (with J.C. Wolfe and J.T. Williams), NASA-Johnson Space Center, 1990-91, $56,500.

34. "Applications of High Temperature Superconductors," (with J.C. Wolfe and J.T. Williams), Defense Advanced Research Projects Agency, 1990, $350,000, contract through the Texas Center for Superconductivity.

35. "Survey of Beaming Properties of an Extremely Large, Segmented Phased Array of the Limb of the Moon," (with D. Criswell), University of Houston Energy Lab, 1991, $10,369.

36. "Monolithic Millimeter Wave Radiating Systems and Feed Networks," (with D.R. Jackson and J.T. Williams), Army Research Office, 1991-94, $225,000.

37. "High Temperature Superconducting Microstrip Array," (with J.T. Williams and J.C. Wolfe), NASA-Johnson Space Center, 1991-92, $56,000.

38. "Applications of High Temperature Superconductors," (with J.C. Wolfe and J. T. Williams), Defense Advanced Projects Agency, 1991, $300,000, contract through Texas Center for Superconductivity.

39. "High Frequency Superconducting Antenna Arrays and Feed Structures," (with D.R. Jackson), Texas Advanced Research Program, 1992-94, $198,400.

40. "Applications of High Temperature Superconductors," (with J.C. Wolfe and J. T. Williams), Defense Advanced Projects Agency, 1992, $355,000, contract through Texas Center for Superconductivity.

41. "High Temperature Superconducting Antenna Array for Flight Communication Experiment," (with J.T. Williams and J.C. Wolfe), NASA-Johnson Space Center, 1992-93, $60,000.

42. "Application of High Temperature Superconductors", (with J.C. Wolfe and J.T. Williams), Texas Center for Superconductivity, 1993, $180,000.

43. "Application of High Temperature Superconductors", (with J.C. Wolfe and J.T. Williams), Texas Center for Superconductivity, 1994, $120,000.

44."Application of High Temperature Superconductors", (with J.C. Wolfe and J.T. Williams), Texas Center for Superconductivity, 1995, $100,000.

45. "Investigation of the Microwave Power Handling Capability of High-Tc Superconducting Thin Films", (with J. Wosik), Texas Advanced Research Program, 1996-98, $194,780.

46. "Development of Advanced Antennas for Cellular Telephones", (with J.T. Williams), Texas Advanced Technology Program, 1996-98, $277,623.

47. ."Application of High Temperature Superconductors", (with J.C. Wolfe and J.T. Williams), Texas Center for Superconductivity, 1996, $80,000.

48. "Application of High Temperature Superconductors", (with J.C. Wolfe and J.T. Williams), Texas Center for Superconductivity, 1997, $35,000.

49. "Tunable HTS Antennas", (with J. T. Williams, D. R. Jackson and J.C. Wolfe), Texas Center for Superconductivity, 1998, $55,000.

50. "Microwave Characterization of Perovskite Oxide Thin Film Structures for Tunable Microwave Devices", (with J.

Wosik), Texas Advanced Research Program, 1998-00, $151,785.

51. "Tunable High Temperature Superconducting Antennas", (with J. T. Williams, D. R. Jackson and J.C. Wolfe), Texas Center for Superconductivity, 1999-2000, $35,000.

52. "Investigation of Electromagnetic Pipeline Sensors", (with D. R. Jackson, J. T. Williams, D. R. Wilton), AGAR Corporation, 2000-2001, $45,000

53. "Millimeter Wave Technology of Dielectric Resonator Antenna Systems", Institute for Space Systems Operations, 2000, $12,040.

54. "Dielectric Resonator Antenna Applications in Wireless Communications", Grants to Enhance and Advance Research, 2000-2001, $21,000.

55. "Development of Interactive Software for Antenna Engineering", Faculty Development Initiative Award, University of Houston, 2000-2001, $3949, S.A. Long

56. "Research Experience for Undergraduates in Electrical and Computer Engineering at the University of Houston", (with F. Claydon), National Science Foundation, 2001-2002, $88,489.

57. "Undergraduate Recruiting and Retention of ECE Students at the University of Houston", (with F. Claydon), Texas Higher Education Coordinating Board, 2001-2007, $604,511.

58. "Utilization of Existing Structures as Radiation Sources for Telecommunications Base Stations", (with J.T. Williams), National Science Foundation, 2001-2002, $66,705.

59. "Dielectric Resonator Antenna Applications in Wireless Communications", (with D.P. Shattuck), Texas Advanced Research Program, 2002-2003, $160,000.

60. "Research Experience for Undergraduates Supplement to Utilization of Existing Structures as Radiation Sources for Telecommunications Base Stations ", (with J.T. Williams), National Science Foundation, 2002, $7500.

61. "Supplement to Utilization of Existing Structures as Radiation Sources for Telecommunications Base Stations", (with J.T. Williams), National Science Foundation, 2002, $33,000.

62. "Control and Modification of Electric Currents on Existing Structures for Use as Effective Antennas in Wireless Communications Systems", (with J.T. Williams), National Science Foundation, 2002-2006, $300,000.

63. "Research Experience for Undergraduates in Electrical and Computer Engineering at the University of Houston", (with F. Claydon), National Science Foundation, 2003-2006, $318,687.

64. "STEP-AHEAD: Access to Higher Education through Academic Retention and Development at the University of Houston", (with F. Claydon, D. Roberts, R. Herman, and C. Waight), National Science Foundation, 2003-2008, $1,511,236.

65. "RET Site: Research Experiences for Greater Houston High School Science and Math Teachers", (with F. Claydon), National Science Foundation, 2003-2006, $435,530.

66. "Undergraduate Recruiting and Retention of ECE Students at the University of Houston", (with F. Claydon), Texas Higher Education Coordinating Board, 2004-2006, $191,716

67. "Undergraduate Recruiting and Retention of ECE Students at the University of Houston", (with F. Claydon), Department of Education (subcontract through the University of Texas at Austin), 9/1/04-8/31/05, $165,387.

68. "Infinity and Beyond: Integrated Physics and Chemistry Professional Development Project for High School Teachers", (with Andrea Foster and Eugene Chiappetta), Texas Higher Education Coordinating Board, 2004, $300,000.

69. "Undergraduate Recruiting and Retention of ECE Students at the University of Houston", (with F. Claydon), Department of Education (subcontract through the University of Texas at Austin), 9/1/04-8/31/05, $90,690.

70. "Undergraduate Recruiting and Retention of ECE Students at the University of Houston: Best Practices", (with F. Claydon), Texas Higher Education Coordinating Board, 2005-2007, $372,561.

71. "Retention of Female Undergraduates ECE Students at the University of Houston", (with J. Trenor and F. Claydon), Texas Higher Education Coordinating Board, 2005-2007, $79,176.

72. "Research Experiences for Undergraduates, Innovations in Nanotechnology", (with F. Claydon and J. Trenor), National Science Foundation, 2007-2010, $320,236.

73. "UH Youth in Technology, (with F. Claydon and K. Zerda), Texas Workforce Commission, 2007-2009, $300,000.

74. "Peer Mentoring Scholarships", (with F. Claydon, and K. Zerda), Texas Workforce Commission, 2007-2008, $62,302.

75. "RET Site at the University of Houston: Innovations in Nanotechnology", (with F. Claydon, J. Trenor, and S. Yu), National Science Foundation, 2007-2010, $497,997.

76. "A Pathway to Success for Academically Promising Low-Income Engineering Students at an Urban University (with F.Claydon, and K.Zerda), S-STEM Grant, National Science Foundation, 2008-2013, $598,568.

77. "Summer Camps for Engineering", (with F. Claydon and K. Zerda), Texas Higher Education Coordinating Board, 2008, $20,000.

78. "Summer Camps Supplement", (with F. Claydon and K. Zerda), Texas Workforce Commission, 2008, $26,250

79. NUE: Development of the NanoEngineering Minor Option (NEMO) at the University of Houston, (with D. Litvinov, H. Rifai, P. Sharma, and F. Claydon), National Science Foundation, 2008-2010, $199,988.

80. GK-12 Program at the University of Houston: Innovations in Nanotechnology and Nanosciences – Using a Knowledge, Applications, Research, and Technology (KART) Approach, (with P. Sharma, F. Claydon, H. Rifai, and E. Chiappetta), National Science Foundation, 2009-2015, $2,874,660.

81. STEP Forward: STEM Talent Expansion Program for Women and Under Represented Group Recruitment and Retention Development at the University of Houston, (with F. Clayton, H. Rifai) National Science Foundation, 2009-2016 $1,999,955.

82. UH Youth in Technology, (with F. Claydon and K. Zerda), Texas Workforce Commission, 2010-2012, $330,000.

83. Research Experiences for Undergraduates (REU) Innovations in Nanotechnology at the University of Houston, (with F.Claydon and G. Stein), National Science Foundation, 2010-2013, $331,590.

84. Research Experiences for Teachers (RET) Site at the University of Houston: Innovations in Nanotechnology, (with F. Claydon), National Science Foundation, 2011-2015, $429,288.

85. TxWFC Summer Camps, Texas Workforce Commission, (with F.Claydon), 2013, $102,500.

86. Research Experiences for Undergraduates (REU), National Science Foundation, (with F.Claydon and G. Stein), 2013-16, $422,487.

87. Mellon Research Scholars Program at the University of Houston, Andrew W. Mellon Foundation, 2017-2020, $500,000.

88. REU Site: Neurotechnologies to Help the Body Move, Heal, and Feel Again, National Science Foundation, (with Jose Contreras-Vidal), 2018-2021, $427,371.

89. Engineering/NSM Student Success Program Serving Low-Income Academically Talented Students, National Science Foundation, (with Diana de la Rosa Pohl, Andrew Hamilton, and Jerrod Henderson), 2018-2023, $999,029.

Total of approximately $20.601M

SERVICE ACTIVITIES

University Service:

University Research Committee, 1979-82; Limited Grant-in-Aid Subcommittee, 1979; Research Initiation Grant Subcommittee, 1979-80, 1980-81; Graduate and Professional Studies Council, 1980-82; Central Campus Research Subcommittee on Industrial Relations, Chair, 1981-82; Patent Hearing Committee, 1983; Faculty Senate 1984-86; Athletic Subcommittee on Human Performance, 1984; Faculty Senate Subcommittee on Faculty Affairs, 1984-85; University Athletic Advisory Committee, 1984-87; Faculty Senate Subcommittee on Budgetary Matters, 1984-1985; Elected "Member at Large" of Faculty Senate, 1986; Faculty Senate Executive Committee, 1986; Head Basketball Coach Search Committee, 1986; Special University Committee on Athletics and Academics, 1986; Athletic Director Search Committee, 1986; Honors College Task Force, Chairman, Subcommittee on Finance, 1988; Committee to Evaluate the Strategic Plan of the College of Pharmacy, 1989, University Budget Council, 1990-92; Search Committee for Senior Vice President for Academic Affairs, 1991; Vice Chairman of University Budget Council, 1991; Management Advisory Committee, 1991; All University Planning Council, 1991-92; Committee to Evaluate Dean of Business, 1993; Committee to Evaluate the Dean of Engineering, 1994; President, Athletics Advisory Committee 1994-96; Self Study Committee on Student Life, 1995-97; NCAA Athletics Department Certification Committee, 1995-97, Athletics Advisory Committee, 1996-98; University Wide Student Recruitment Committee, 1996-2000; Chair, Committee to Evaluate the Dean of Natural Sciences and Mathematics, 2001; University Honors College Council, 1982-present; University Research Council, 2000-2002; Committee of Associate Deans, 2000-present; Athletics Advisory Committee, 2000-2009; NCAA Athletics Department Self-Study Committee, 2005-2006; SACS Quality Enhancement Plan Committee, 2006-present; Search Committee for Associate Vice Chancellor/Associate Vice President for University Relations; Associate Dean of Undergraduate Research and The Honors College, 2006-present; University Research Council, Fellow of the Honors College, 2005-present; University Investiture Committee, 2008; Interim Dean, Honors College, 2008-2009; Phi Beta Kappa Organizational Committee, 2009-2010; Interim Vice President/Vice Chancellor for Research and Technology Transfer, 2010-2011; Council of Vice Presidents, 2010-2011; President's Cabinet, 2010-2011; University Scholarship Committee, 2011-2014; Faculty Senate Committee on Research and Scholarship, 2011-present; Phi Beta Kappa Committee, 2013-present; University Faculty Awards Committee, 2013-2017; University First Year Experience Task Force, 2013-present; University Advance Committee Co-Chair, 2014-present; Houston Scholars Committee, 2014-present.

College Service:

Engineer's Week Chairman, 1976; Graduate Standards Committee, 1975-77; Graduate Advisory Committee, 1975-77; College Recruitment Council, 1976-78; Graduate Standards Committee, 1981-82; Executive Committee, 1981-2008; Dean Search Committee, 1981-82; Teaching Evaluation Committee, 1984; Chairman, Joint UH-UHCL Computer Engineering Committee, 1989-92; Engineering Alumni Association Awards Committee, 1994-95; College Development Committee, 1994-96; Associate Dean, 1995-1998, College Awards Committee 1995-2002; Chair, Chemical Engineering Department Chair Search Committee, 1999-2000; College Representative to the National Engineering Research Council; 2000-2002; Associate Dean for Research Activities, 2000-2002; Associate Dean for Educational Activities, 2002-2008; Chair, Ad Hoc Committee on Space Issues, 2006; Chair, Ad Hoc Committee on Bylaws, 2006-2007; Chair, Civil Engineering Department Chair Search Committee, 2008-2009; Chair, Industrial Engineering Promotion and Tenure

Committee, 2009; Engineering College Honors Program Committee, 2009-present; ECE Chair Search Committee, 2009-2010; College Promotion and Tenure Committee, 2010-2012; College Research Awards Committee, 2010-present; College Scholarship Committee, 2011-present; College Promotion and Tenure Committee, 2013-2017; Search Committee for PROMES Director, 2013-2014; College Academic Honesty Officer, 2013-2017; Search Committee for Career Center Director, 2015

Department Service:

Faculty advisor and sponsor of IEEE student branch, 1975-77; Revision of electrical engineering undergraduate advising procedures, 1976; Electromagnetics course sequence chairman, 1977-83; Professor-in-charge, ELEE 4337,4338, 1976-83; Electromagnetic Fields Ph.D. Qualifying Examination Committee Chairman, 1977-83; Academic Standards Committee, 1977-81; Scholarship Committee, 1977-79; Academic Advisor to undergraduate scholarship recipients, 1977-79; Director of Graduate Studies, 1978-81; Co-Chairman of Academic Standards Committee, 1978-81; Policy Committee, 1978-81; Acting Chairman, Electrical Engineering Department, 1981-83; Department Chairman Search Committee, 1982-83; Chairman, Distinguished Lecturer Series Committee, 1983-84; Faculty Recruitment Committee, 1983-84; Chairman, Department of Electrical Engineering, 1984-1995; Chair, Faculty Productivity Evaluation Committee, 1998; Interim Chair, Department of Electrical and Computer Engineering, 1998-99, Chair, Department Promotion and Tenure Committee, 1999; Department Post Tenure Review Committee, 1999-2000; Academic Advisor to Honor's Program Students, 1983-present; Chairman's Executive Committee, 2005-2009, Faculty Search Committee, 2006-2017; Department Post Tenure Review Committee, 2012-2015; Department Post Tenure Review Committee, 2018-2021; Department Executive Committee, 2013-present.

Professional Service:

Vice Chairman of Houston Chapter of the IEEE group on Antennas, Microwaves, Magnetics, and Electron Devices, 1975; Chairman of Houston Chapter of the IEEE group on Antennas, Microwaves, Magnetics, and Electron Devices, 1976-1989; Chairman of the University Education Committee of the Engineer's Council of Houston, 1976-80; Auxiliary Program Chairman of the 1980 Frontiers in Education Conference, University of Houston, October 1980; Chairman and Organizer of 1983 Antennas and Propagation Society International Symposium and National Radio Science Meeting, 1983; Meetings Chairman, IEEE Antennas and Propagation Society, 1980-1988; Elected member of IEEE Antennas and Propagation Society Administrative Committee, 1982-85; Antennas and Propagation Society Representative to IEEE Technical Activities Board Workshop on Finances and Meetings, 1984; Nominee for IEEE Antennas and Propagation Society President-Elect, 1984, 1987; Editorial Board, Journal of Electromagnetic Waves and Applications, 1986-1990; Technical Program Committee for IEEE Antennas and Propagation Society International Symposium, 1990; Steering Committee for Antennas and Propagation Society International Symposium and National Radio Science Meeting, 1990; Elected member of IEEE Antennas and Propagation Society Administrative Committee, 1990-1992; Nominating Committee for National Electrical Engineering Department Heads Association, 1992-1995; Vice-President of the IEEE Antennas and Propagation Society, 1995; President of the IEEE Antennas and Propagation Society, 1996; Chair, Nominations Committee, IEEE Antennas and Propagation Society, 1997; Chair, Past Presidents Committee, IEEE Antennas and Propagation Society, 1997; Immediate Past-President of the IEEE Antennas and Propagation Society, 1997; Member-at-Large, IEEE Publications Activities Board, 1998-2000; Elected Member, Administrative Committee, IEEE Antennas and Propagation Society, 1995-00, Chair, Magazine Committee, IEEE Technical Activities Board, 1997-99, IEEE Periodicals Review Committee, 1998-99; IEEE Publications Activities Board Corporate Identity Subcommittee Chair, 2000; IEEE Publications Activities Board Review Cycle Time Subcommittee Chair, 2000; Member-at-Large, Local Arrangements Chair, IEEE AP-S International Symposium, 2002; IEEE Publications Services and Products Board, 2001-2003, Antennas and Propagation Society Awards Committee, 1989-2005; Chair, Joint Antennas and Propagation Society/URSI International Meetings Committee, 2002-2004; IEEE Women in Engineering Committee, liaison member, 2002-2005, Vice Chair, IEEE Fellows Committee, 2003, IEEE Division IV Director-Elect, 2004; IEEE Board of Directors, Director Division IV, 2005-2006; IEEE Spectrum Editorial Board, 1999-2006; IEEE Audit Committee, 2005-2007; IEEE Region 5 Society Liaison, 2005-2006; IEEE RAB/TAB Section Chapter Support Committee, 2005-2006; IEEE Fellows Committee, 2002-2007, IEEE Educational Activities Board 2007- 2008; IEEE Membership and Geographical Activities Board, 2008; Sandia National Laboratories Engineering Advisory Board, 2011-2017; IEEE Antennas and Propagation Society National Meetings Coordinator, 1988-present; Chair, Houston IEEE Chapter AP-S, MTT, ED Societies, 2009-present; IEEE International

Symposium on Antennas and Propagation, Technical Program Committee, 2009-present.

Reviewer for Technical Journals:

IEEE Transactions on Antennas and Propagation; Electronics Letters; Radio Science; Electromagnetics; Archiv Fur Elektronik Und Uber Tragungstechnik; Journal of Electromagnetic Waves and Applications; IEEE Transactions on Electromagnetic Compatability; IEEE Transactions on Vehicular Communications, IEE Proceedings-H Microwaves, and Antennas and Propagation; Microwave and Millimeter-Wave Computer-Aided Engineering; IEEE Antennas and Wireless Propagation Letters, Microwave and Wireless Components Letters, IEEE Antennas and Propagation Magazine.

Reviewer for Book Publishers:

Harper and Row; John Wiley; Holt, Reinhart, and Winston; MacMillan; McGraw-Hill; Wadsworth; PWS; Oxford University Press.